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DON VALLEY CONSERVATION
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DON VALLEY CONSERVATION REPORT 1950

SUMMARY & RECOMMENDATIONS



DEPARTMENT OF PLANNING AND DEVELOPMENT



Don Valley Conservation Authority

Established April 29, 1948

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VICE-CHAIRMAN: A. A. OUTRAM, 175 Rumsey Rd., Leaside, Ont.
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Department of Planning and Development

HON. WILLIAM GRIESINGER, Minister

A. H. RICHARDSON
Chief Conservation Engineer

Don Valley Conservation Report

1950

RECOMMENDATIONS
and
SUMMARY

TORONTO

Printed and Published by Baptist Johnston, Printer to the King's Most Excellent Majesty
1950

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PART I—GENERAL

1. THE RIVER, GEOLOGY AND PHYSIOGRAPHY

1. LOCATION AND BOUNDARIES

The watershed of the Don River is an area of 141 square miles lying to the north of Lake Ontario at Toronto. It is roughly rectangular in shape, about 18 miles long and 9 miles wide. On the north and west it is bounded by the watersheds of the Humber, Etobicoke and Mimico, on the east by those of the Rouge and Highland Creek. The watersheds of small streams which flow directly into Lake Ontario separate the southern boundary from Lake Ontario except for the valley at Riverdale through which the Don flows to Toronto Bay. The term "watershed" means all the land drained by one river and its tributaries.

The river has two main branches. They arise in the hills in the north part of Vaughan Township. The two branches run nearly parallel to each other in a south-easterly direction. The eastern branch crosses Yonge Street at Thornhill and the western branch at York Mills in Hogg's Hollow. A number of tributaries feed both these branches. The two main branches join at the forks of the Don, one-half mile east of Thorncliffe race track at the Don Mills Road. Also joining the main stream at this point is a tributary, Taylor Creek, which drains the south-west corner of Scarborough Township. Some small tributaries and one fair-sized stream running through Rosedale join the river between the forks and its mouth at Toronto Bay.

The main streams rise in hills with elevations of 1,050 feet above sea level. The elevation of the lake is 245 feet, so that the river falls more than 800 feet. The fall in the land is about 45 feet per mile, but as the river meanders throughout its course its gradient is less. Near its source the river has a gradient of about 46 feet per mile for about 7 miles, but along the lower 13 miles of its course it falls at the approximate rate of 20 feet in the mile.

The east branch has many tributary streams fed by springs which issue from the hills between Maple and Richmond Hill. The west branch has a few springs at its sources. Throughout most of the watershed the streams are fed by surplus run-off, seepage and some springs occurring mostly along the banks.

The valleys are characteristically U-shaped. The sides are quite steep and rise as much as 100 feet, as at York Mills. The valley floors are flat and the streams meander back and forth along them in channels which are usually deep enough to contain all but the greatest flows. Near the headwaters the valleys are broadly V-shaped and there is less meandering. The main stream south from the Bloor Street Viaduct has been canalized into a straight channel.

Ten municipalities are within, or partly within, the watershed. The greater part of North York Township is in the watershed and it has the largest area drained by the river. Vaughan Township also has a large area in the watershed. The south-west corners of Markham and Scarborough Townships are drained by tributaries.

2. GEOLOGY

The bedrock which underlies the watershed has little direct effect on the features of the landscape because it is covered to a depth of hundreds of feet by unconsolidated material of glacial deposition. The bedrock has, however, an indirect effect in the strongly clayey composition of the material at the surface.

The rock is a sedimentary deposit of great age. It is shale in nearly horizontal beds. At no place on the watershed is it exposed at the surface, but it can be seen in the workings at the Don Valley Brick Yard. There is a slight dip in the strata so that the rock slopes gently south-westward away from the shield toward the basin of the Great Lakes. This may account in part for the general southerly slope of the land. Otherwise the surface relief is not related to the bedrock.

The surface material has been derived, in large part, from the underlying rock. This makes the soil of the region predominantly clayey. The clay soils have a fair proportion of lime, partly from the lime in the shale and partly from limestone in other formations over which the glacier passed. Other mineral components of the soil have been carried by the glacier from more remote parts, even as far as outcrops of the shield.

3. GLACIAL GEOLOGY

The mantle of unconsolidated material covering the bedrock has accumulated in the past million years, in the Pleistocene epoch. Throughout this time the active agents were glaciers, lakes and weathering in interglacial periods. It is now generally believed that the ice covered this region three times. The deposits of three glaciers and two inter-glacial periods are recognized at Scarborough Bluffs and at the Don Valley Brick Works. The relatively soft rock of the region and the recurrence of glaciation accounts for the depth of material called drift, which is found locally. Well drillings commonly reveal as much as 250 feet of drift and one site, near Thornhill, is reported to have 650 feet.

The present surface relief is mostly the result of the last glaciation, called the Wisconsin, and the work of the lake formed by meltwaters, called Lake Iroquois, which filled the Lake Ontario basin. The youngest valleys and deposits are the result of the present stream system and are classified as "recent", that is, the result of the last ten or twenty thousand years.

The evidence shows that the Wisconsin glaciation advanced across Southern Ontario in a south-westerly direction. In the stage at which our landscape was moulded, it consisted of two lobes. One came from the Trent-Simcoe basin, advancing south-west, and one from the Lake Ontario basin, advancing north-west. In its north-western advance, it shaped the ground with a pronounced "grain" in a south-east to north-west direction. This shape of the surface strongly influences the pattern of surface drainage. At the line of contact of the two lobes, a complex system of hills was built up. These are called the "Interlobate Moraine" and it is from a branch of this formation that the headwater streams arise.

4. GLACIAL LAND FORMS

(a) Classification

Glaciation constructs certain land forms, each with its own set of topographic and soil features, which are classified in terms of their mode of deposition. The glacial land forms found on the watershed are here described.

(b) The Till Plain

Material deposited under a moving glacier is called ground moraine and the land form thereby created is a "till plain". The surface relief is undulating to rolling and in this instance has the grain of alternate ridges and valleys previously mentioned. The material consists of rock fragments, varying in size from particles of clay to quite large boulders. In composition it varies from a heavy clay loam, called heavy till, to a loam called light till.

(c) The Interlobate Moraine

Material pushed up at the face of the glacier during a halt is called a terminal moraine. Its topography is rougher, more hilly or hummocky than that of the till plain. The materials are similar to those of a till plain although generally lighter in texture. As the ice face becomes stagnant or retreats, meltwaters sort out and deposit coarse materials with higher proportions of sand and gravels. Roughly sorted sands and gravels are formed by meltwaters into conical hills called "kames" and ridges called "eskers". Stratified sand deposited by meltwaters as they slow down in their flow away from the glaciers forms "outwash plains". All these features are found in the interlobate moraine.

(d) Bevelled Till Plain

At one stage in the disintegration of the glacier, meltwaters were trapped in a large ponding. This ponding, with varying depth, covered much of the till plain. The water smoothed or bevelled the surface of the till plain making it more gently undulating or even flat. It also had the effect of depositing silt and clay or of reworking the material of the till and redepositing the finer material on the surface. The soils of the bevelled till plain therefore tend to be heavier, more compact and relatively stone-free. This formation on the Don Watershed is called the "Peel Plain".

(e) Lacustrine Features

As the Ontario lobe of the glacier melted, the basin of the lake and the land to the north became free of ice. The natural outlets of the lake, however, were dammed by ice and a larger lake was formed. This is called Lake Iroquois. The shore features of this lake are easily recognized in the Avenue Road and Yonge Street hills. A number of other lacustrine features were formed. Below the hill the soil in Toronto is largely clay or silt deposited on the floor of the lake or sand in river deltas or sand bars. Deltas and bars were also formed by streams flowing into the Peel ponding which caused areas of sandy soil of some significance on the Peel Plain.

5. PHYSIOGRAPHY OF THE RIVER

The valleys of the Don River system are comparatively young. Their history has been complicated by the varying levels of Lake Iroquois and Lake Ontario due to changes in volume of water, damming by ice and later elevation of the land when it was released from the weight of the ice.

The main features of a young river system are the steep-sided, V-shaped valleys and the incompleteness of the surface drainage. As a river gets older, the valleys broaden out with gently sloping sides and the river system, by headward erosion, extends to drain the whole surface. The surface relief of this watershed still exhibits the features of the glacial deposits, especially near the headwaters, and the stream courses conform to the surface rather than mould it.

The steep-sided valleys so characteristic of the Don near Toronto were cut by streams flowing into Lake Iroquois. Across the mouth of the Don, as it existed in the time of Lake Iroquois, a sand bar was formed in the same way as Toronto Island has been formed across the mouth of the present river. This bar now forms a ridge of sandy and gravelly land in East Toronto. The later stages of Lake Iroquois and Lake Ontario have altered the river in its lower reaches. The Lake Iroquois "Toronto Bay" has been filled in with sand and clay and elevated above the level of Lake Ontario. The valleys of the Don, in their lower reaches, have also been filled in to form flat floors. The present river system flows across these floors to find outlets at the present level of the lake.

The flow of water was greater in post-glacial times and the valleys are larger than are required by the modern rivers. The streams are now cutting into the floors of the valleys in courses which meander over the flood plain.

The headwater streams are typically young, with V-shaped valleys, little meandering and with quite steep gradients. Flow is maintained in many of them by springs issuing from the interlobate moraine or along their banks. Streams arising on the till plain and the Peel Plain generally dry up in summer. All the streams have a much greater flow during the spring thaw because of the surface run-off of precipitation accumulated in the form of snow.

6. CLIMATE

With respect to a river system, the main features of the climate are the uniformity of rainfall throughout the year, the high temperatures of summer with resulting great demand for moisture, the cool autumns during which the soil deficit in moisture is made up and the cold winters during which the precipitation is accumulated in the form of snow so that surface run-off is concentrated during the thaw.

The relation between supply of moisture and need is the significant feature of climate with regard to a river. The water falling on the land is disposed of as follows: to the ground to recharge ground water and soil moisture, through the soil to the streams by way of springs and seepage, to the streams as surface run-off, to the air by evaporation from the surface of the soil or by transpiration by plants. The loss to the air is called evapotranspiration. Studies made of this phenomenon in Toronto illustrate certain features of the Toronto climate. Ten and nine-tenths

inches of rainfall are lost as run-off. For about three months, however, this is accumulated as snow and runs off in the spring flood. For the late part of the summer there is an actual shortage of moisture amounting to a deficit of 2.5 inches.

The climate is beyond control but the run-off and stream flow may be regulated better to serve the inhabitants of the watershed. The small flow in the streams in summer is inadequate to the requirements of recreation, to maintain the aesthetic value of the river and certainly inadequate to dilute the sewage carried in the lower parts of the river.

7. LAND USE

About 15 per cent of the area is built up; 6 per cent of the total area is within the Toronto city limits. In addition to the built-up areas and the purely agricultural land there is a broad belt of land which might be termed the "rural-urban fringe" of the city. This belt includes large areas used for recreation, public and private; real estate subdivisions on which there is neither farming nor buildings; specialized forms of farming, market gardens and greenhouses; and small holdings which serve a dual purpose.

2. LAND SETTLEMENT

1. THE INDIANS

Very little definite information is at present available about the activities of the first inhabitants of the Don Watershed. Indian relics have been found in several places within its boundaries, but at present it is difficult to decide whether these should be attributed to the prehistoric inhabitants, the Senecas of the 1600's or the later Mississaugas. The chief villages of the Senecas lay near the Humber and the Rouge, but it seems very probable that smaller settlements may have been located near the lower Don. The Mississaugas certainly exploited the river flats for agriculture and depended on the fisheries and game of the area. A concentration of sites near Sherwood should probably be attributed to the Mississaugas, who had a regular camping place on the site of the first village of York, within the watershed of the Taddle but not far from the mouth of the Don. The river itself was of little use for navigation above Todmorden, though it was possible to penetrate farther with lightly loaded canoes or in times of high water. There were, however, several well used trails crossing the area, parts of which later became roads and are now represented by streets. Among these may have been the trail which was the forerunner of Yonge Street, but at the time of settlement this had fallen into disuse.

2. FUR TRADING AND TOWN PLANNING 1760-1792

The interests of the French fur-traders and missionaries centred outside the Don Watershed and, though they must frequently have crossed the area and been tolerably familiar with it by 1759, they have left very little information in documents or maps. The harbour behind the "Presqu'ile de Toronto" was used as an anchorage and travellers in small boats were in the habit of portaging over the isthmus either near the present Eastern Gap or at the east end of Ashbridge's Bay. Until the Revolutionary War the British authorities excluded

settlers from Upper Canada and attempted to restrict fur trading to a limited number of licensed traders. However, the profits of the rum trade were too attractive and unlicensed traders frequented the Toronto area. After licensed traders were established at the Humber in the 1770's, their unlicensed rivals may have frequented the Indian camps near the Don, but references to the area are still extremely few until just before the Toronto Purchase. This treaty with the Mississaugas was the result of the desire of some traders in Montreal and Quebec to find a shorter and less exposed route to the upper Great Lakes. A preliminary survey was made in 1783 and proposals for establishing the Toronto route in return for land grants roused the interest of Lord Dorchester in the project. The purchase of the area was ordered and carried through at the Carrying Place¹ on September 23, 1787. The boundaries of the Toronto Purchase were not clearly laid down in the treaty and disputes with the Indians prevented the completion of Alexander Aitkin's survey of the boundaries in August, 1788. Aitkin's letters and plans show that the Don was then called the "Nechinquakakonk" and make it clear that it was intended to include a large townplot in the survey. This was to resemble the standard plan used at Cornwall. The well known "Gother Mann" plan, made later in 1788, enlarged the townplot and added features which indicate that the Toronto settlement was expected to be the chief place of the Province. Dorchester seems to have been pressing the scheme and grants of land were approved and ordered in 1788. However, there would appear to have been some passive resistance to the Toronto plan on the part of the local Land Board. The surveys ordered in 1790 were not carried out until about a year later and the order to locate certain land grants in June, 1791, was not even acknowledged until a year after it had been received. By that time the whole situation had been altered by the division of Canada into upper and lower provinces, by the departure of the Governor-General on leave and the arrival in Quebec of Colonel John Graves Simcoe, the new Lieutenant-Governor of Upper Canada. The Land Board was thus able to defer all action on the Toronto settlement until Simcoe reached Upper Canada. The first conception of a city at Toronto was certainly Lord Dorchester's. Simcoe took over the idea from him, but the two Governors differed on some essential points in the plan.

3. THE FIRST SETTLEMENT, 1793-1815

Toronto had been included among the new military posts that Simcoe was instructed to set up in Upper Canada. He was also instructed to open a military route to Lake Huron by the Toronto portage. Dorchester favoured placing the capital of the new province at Toronto, but the Home Government seems to have wished for a more central location and Simcoe had already decided that this should be on the Thames. He continued to be of this opinion throughout his stay in Canada and in the spring of 1793 he chose the Forks of the Thames as the site of the future capital, to be called "London". Later in the year Simcoe visited Toronto, choosing locations for a garrison, town, shipyards, etc., and writing enthusiastically to Lord Dundas of the capabilities of the site

¹The Carrying Place is at the head of the Bay of Quinte, where the old portage crossed the isthmus of Prince Edward County south of the present Murray Canal. A monument marks the place where the treaty was signed.

as a port, arsenal and military post. The townplot was surveyed in June; work on the garrison began late in July, the Simcoes themselves arriving on July 30, 1793 and taking up residence in a camp at the foot of Bathurst Street. Simcoe had been referring to the new settlement as "York" for several months and the new name for the town and county was announced in August. It had now been definitely determined that York was to be the seat of government, although Simcoe still believed that this would be only for a time. His arrangements for laying out the settlement differed considerably from Dorchester's and were influenced by the demands of the leading inhabitants who were still reluctant to move to York and in some cases were opposed to the development of the new route. The new town plan was less extensive, the reserves were curtailed, the commons omitted and the "Park Lots" increased in size and reduced in number. Settlers in the town were to receive a farm lot in the neighbourhood in addition to their town lot, on condition of building a house of a certain size in the town within a specified time. The various officials, members of the councils, military officers and some others were given a hundred-acre Park Lot as a further inducement to build in York and compensation for the expense of moving there. One result of these arrangements was to reduce the amount of settlement in the Don Watershed in the immediate neighbourhood of York. When a distribution of lots was held in September 1793, most of those given out went to inhabitants of the town of York or to other absentees, and actual settlement within the Don Watershed below Eglinton Avenue was at first limited almost entirely to a small group near the river. This group included John Scadding, near the Don Bridge, and, in the second concession, three members of the Playter family and John Coon. The first house to be built was John Coon's, located near the Don Valley Brick Yards and nearly finished early in September 1793. An area of nearly 400 acres between the town and the Don (east of Parliament Street) was reserved for some purpose known only to the Governor, and north of this area Simcoe took 200 acres in the name of his son, Frank.

The Simcoes selected a site for a house on their son's land in October 1793 and called it Castle Frank. Work on the site was begun, but building had not really started when Mrs. Simcoe returned in the autumn of 1795 after an absence of more than a year. During all her stays in York Mrs. Simcoe was often in the Don valley and her diaries and sketches give a clearer picture of it than any other source before 1820. Castle Frank was never completed, but the unfinished house was used during the spring and summer of 1796. After the Simcoes' departure it remained unused, and had been burned or torn down by 1823.

The layout of York Township north of Eglinton Avenue was altered when the line of Yonge Street was established after a trip to Lake Huron taken by Governor Simcoe in October 1793. On starting, it was probably expected that the road would run not far from the old Humber Trail. The Governor set out by the Humber, but returned by a different route and happened to find the little-used trail from Holland Landing to Toronto Bay. The new road was laid out near this route, separating the Townships of Vaughan and Markham and the concessions on either side of it were continued through York Township as far as Eglinton Avenue.

There was no settlement within the Don Watershed in this northern part of York Township or in Vaughan or Markham Townships till the summer of

1794, when a few lots on Yonge Street were occupied. In Markham a few settlers may have reached their lots in the second, third and fourth concessions at about the same time, but in Vaughan only one settler had occupied a lot in the back concessions before 1796. Asa Johnson was the first to settle on Yonge Street in 1794. He was soon joined by others, and in August 1795 there had been "improvement" on about twenty-six lots on Yonge Street, within the watershed, and about sixteen or seventeen houses had been built. Of these, ten were occupied by their owners and a few more by tenants. An attempt was made to limit grants on Yonge Street to settlers in a position to establish themselves quickly. Grants were subject to special settlement duties and confirmation was granted only when the owner was actually in residence or had "a sufficient tenant". On the whole this policy was successful, though later the strict enforcement was somewhat relaxed. By 1800 all the lots within the Don Watershed on both sides of Yonge Street had been granted. In 1801 there were 80 houses and 89 clearings, most of them over ten acres. There were some absentees and road work had been slackly carried out in a number of cases. Below Eglinton Avenue there was little settlement before 1810. In the next few years a few houses were built, but settlement was scanty below the "third mile post" (St. Clair Avenue) even in 1815.

In York Township on either side of Yonge Street settlement beyond the first concessions was very slow at first. East of Yonge Street this was due partly to soil and topography that made the area unattractive to farmers, but to the west this did not apply to the same degree. In both areas there were more reserve lots¹ than usual to compensate for the lack of reserves in the first three concessions from the Lake and along Yonge Street. West of Yonge Street almost all the unreserved land had been granted before 1800 but there were very few actual settlers until after 1812. Large blocks of land between the reserves had been granted to absentees and both these lands and the reserves remained unoccupied. East of Yonge Street some lots remained ungranted until after the war, though others were settled between 1801 and 1810. In both sections the clearings were few and scattered.

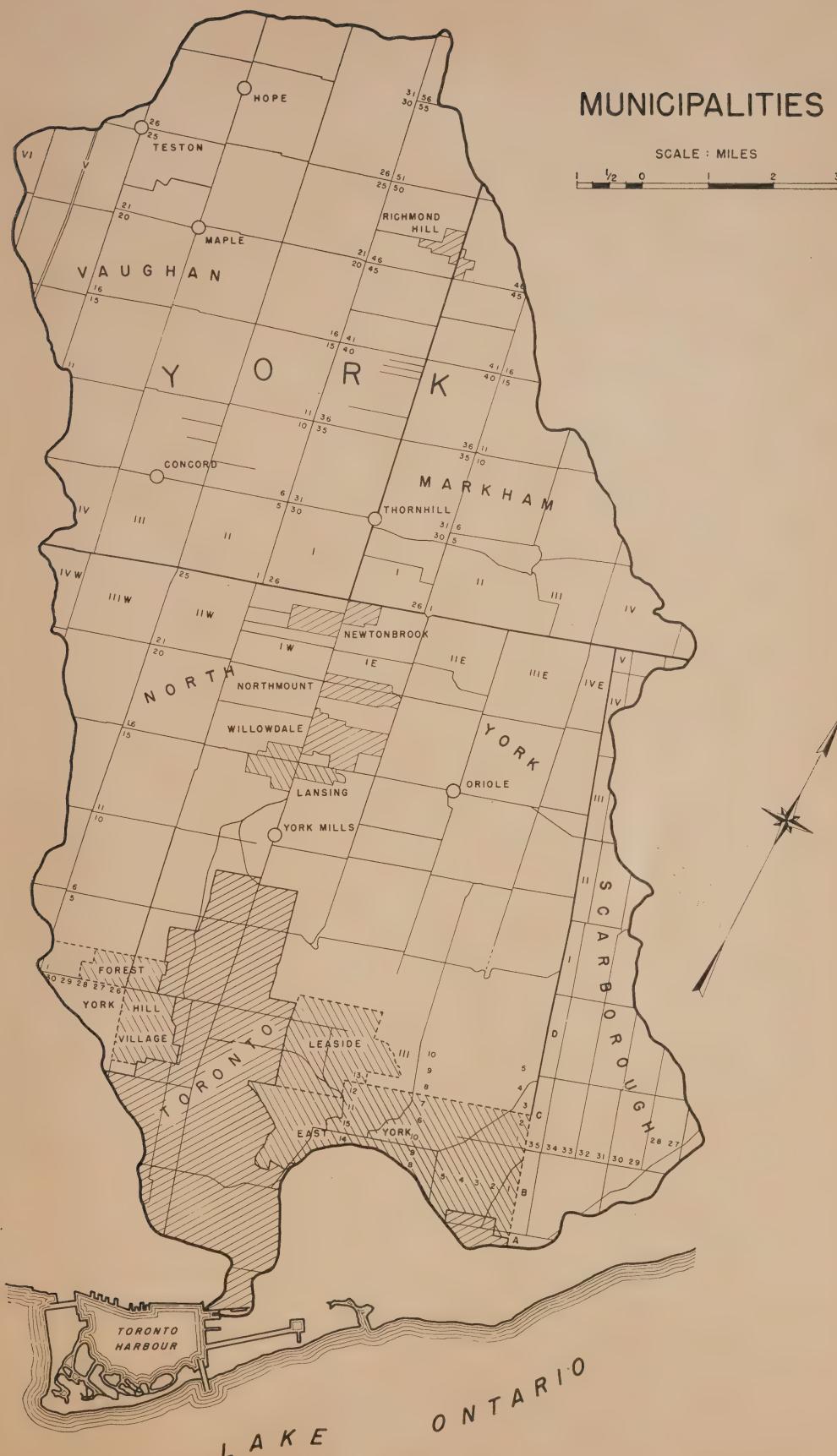
Settlers entered the southern part of the watershed of Taylor Creek in 1794-8 in both Scarborough and York Townships. This settlement was extended up the west side of the Dawes Road after it was opened in 1801. North of Wexford, settlement was restricted by the largest single grant made within the Don Watershed, including some 2,600 acres and accounting for all the unreserved lots on the east side of the road for about seven miles and for about two miles back. In this area settlers had at first to buy or lease their lands and this would certainly slow down development.

In Markham, William Berczy and his associates secured a reserve in 1794 on all the township west of the first concession. They had proposed to bring in 2,000 settlers in return for a grant of 1,000,000 acres. This scheme of settlement by associated companies was in common use at this time, but proved successful only in a few cases. The associates usually undertook far more than they could

¹Reserve lots normally included two-sevenths of all lots in a township, one-seventh "for the support of the Protestant Church" (Clergy Reserves), one-seventh for the future use of the government (Crown Reserves). Some lots with timber suitable for masts were also reserved for the Crown.

MUNICIPALITIES

SCALE : MILES



perform and, as in the case of the German company, the Government tried to reduce their schemes to reasonable dimensions. Berczy was told to be content with 64,000 acres reserved for the 60 German families, already in New York State, who wished to move to Canada in order to get freehold grants instead of leaseholds. Berczy and his associates were to pay the cost of the move, to provide certain stores and services for the settlers on arrival, and to be repaid for this in instalments. The settlers began to arrive in the autumn of 1794, probably in small groups. In June 1797 Berczy made a return of 74 "families". The Council objected that 21 were unmarried men and that others had joined the group at Niagara and cut the list down to 49. They were insisting on the same strict interpretation in the case of other land companies. The reservations of all associated companies were rescinded in 1798 and those who had not filled their quotas of families were refused their full grants of 1,200 acres to each associate. Berczy appealed to the British Government, but it was not till after his death that any grant was made to his family as compensation for his losses. Less than forty of the original families had remained in the township. A few of these were settled in the Don Watershed around German Mills. The failure of the company increased their difficulties but in the end most were able to establish themselves and proved good settlers. They were joined before long by Pennsylvanians of German origin, of the same type as those in Vaughan, and Markham remained chiefly a German-speaking settlement until the 1840's.

An increase in the size of grants to Loyalists, and especially to military claimants, gave many of the first settlers the right to grants of considerable size in addition to those they had already received. Many of the settlers along Yonge Street took up their additional lands in Vaughan Township and these grants, with the Crown and Clergy reserves, accounted for most of the land within the watershed in Vaughan by 1796. These absentee grants might easily have retarded settlement as they did in York Township. However, the arrival of the Fisher family of 22 persons in 1796 was the beginning of an emigration of similar families of German origin from Pennsylvania, who were usually in a position to buy their farms or were willing to rent in order to be near their friends. A thriving settlement had formed in the third, fourth and fifth concessions of Vaughan before 1812. The second concession, where the Yonge Street settlers kept more of their additional lands, settled more slowly. Throughout this period the large size of the holdings led to the small clearings being scattered in groups of three or four separated by considerable areas of forest, even in the best settled parts of the watershed.

4. ROADS AND TRAVEL BEFORE 1830

Road making in the watershed began by the opening of "a road for walking" for three miles on each side of Garrison Creek. This was the original Front Street and probably followed the old Indian trail. A bridge had been built over the Don before the burning of John Scadding's first cottage in January 1794. This part of the road was the highway to Kingston but, because of the need for ferrying over the Humber, the regular road to Niagara for some years followed the old inland Indian trail that is now Davenport Road to the ford at the Old Mill. A trail of some kind must have connected this with the camp and garrison even in 1793, before the opening of Yonge Street.

Yonge Street was "opened" from Eglinton to Lot 29 by Alexander Aitkin in May 1794, but this meant little more than cutting some of the trees and brush along the line and did not reach quite to Thornhill. A second attempt, made by William Berczy between September 1794 and July 1795, carried it only a little beyond Langstaff, but made some improvement on the part opened by Aitkin. Augustus Jones "opened" the whole road in January and February 1796, starting this time at the Bay and following close to the present line. However, the part of Jones' road below Eglinton was very bad and this was partly responsible for the opening of a road "through the pine plains" a little east of Parliament Street. By this road, Castle Frank could be reached without using Yonge Street, but its chief purpose was probably to connect the town with Skinner's Mills by a second bridge over the Don and a track through the Flats. Meanwhile the best road "to Yonge Street" continued to be the old trail following approximately the line of Beverly and St. George Streets to Davenport Road and the Poplar Plains trail to Eglinton. At the end of 1798 it was decided to improve this trail from Eglinton to Queen Street and connect it to the Castle Frank road by a track from its junction with Davenport Road. This connecting road was built "by the negroes", but the rest was carried out in 1799 by a detachment of Rangers. In December 1800 the inhabitants of York raised subscriptions and engaged a contractor to open the road to Yonge Street on the line of the present street. Some work was accomplished, but this part of Yonge Street was again impassable for any carriage in 1801 and there were bad stretches farther north, especially where settlers had neglected their road work. Stricter enforcement of statute labour and further grants from the Legislature produced some improvement, and traffic on the road increased steadily between 1805 and 1812. After the heavy demands of war traffic, special funds had to be voted for the military roads in 1814. Yonge Street was evidently much improved and in 1819 was one of the busiest and best roads in the Province, although traffic was said to be less since steamers had started running on Lake Erie, reviving the importance of the Niagara route to the Upper Lakes. During the next fourteen years the roads probably did not grow much worse, but the standard of road building had improved and Yonge Street had once more fallen behind by 1830.

Dundas Street, east of the head of the Lake, was opened under contract in 1799-1800 by Asa Danforth. This road was made "Yankee fashion" following the easiest ground and crossing the rivers by fords at some distance from the Lake. The settlers along the front opened the "Cornwell Road" before 1812 and "Dundas Street" was neglected. In 1814 funds voted by the Legislature for Dundas Street were applied to the Cornwell Road and this now became the Kingston Road, corresponding to the present No. 2 Highway. Danforth's "Dundas Street", however, was improved as settlement increased and most of this road in Scarborough Township is still in use.

The remaining roads or "bye roads" were managed by officials elected at annual "Town" meetings and responsible to the Justices of the Peace in Quarter Sessions. The Justices enforced statute labour and controlled expenditures. The gradual increase in the number of concession and side roads in use can be traced by the increase in the number of pathmasters elected for separate areas. Some roads were opened by special action such as the "Mill Road" (Broadview) in 1798-9 and the Dawes Road in 1801. In many cases the roads were carried by the most convenient line "cross-lots" without regard to the survey. The

Vaughan Road and Old Forest Hill Road are survivals of these "given" roads, but many others were in partial use until after 1830, although a good deal of adjustment and straightening had taken place by 1824.

Travel on the early roads was at first chiefly on foot or on horseback; wagons could be used only with difficulty and passenger vehicles were scarce. After 1816 wagons were the usual conveyance, but carriages of all kinds were still few in 1830. Stage wagons preceded the coaches on Yonge and Dundas Streets. There was a line of coaches to Kingston in 1817 and of covered wagons on Yonge Street in 1825, changed to coaches a few years later. The coaches, however, were in continual difficulties and there was little improvement in conditions of travel until the 1840's. To bring the roads up to the new standard of the time was beyond the means of a partly settled country and the bad state of communications retarded settlement and increased discontent.

5. MILLS ON THE DON, 1794-1824

Two sets of mills were built on the Don in the winter of 1794-5. Both were saw and grist mills and both were probably running by July 1795. The "Don Mills" at Todmorden were built by Aaron and Isaiah Skinner, sons of Captain Timothy Skinner, Senior, a mill-owner in the Niagara District. The mills continued to be owned by the Skinner family until 1823 when they were bought by John Eastwood. The "German Mills" east of Thornhill were built in 1794 by William Berczy and Andrew Heron who obtained the millstones from the government stores. They were sold in 1805 to satisfy Berczy's creditors and had more than one owner before being abandoned in the 1830's. A small grist mill is said to have been put up in 1799, higher up German Mills Creek, but did not run for more than a few years. There is some evidence for another, possibly near Poplar Plains Road, in 1800. These seem to have been the only grist mills on the Don until after 1812. Parshall Terry built a sawmill near the Forks in 1798-9 and John Lyons one at Thornhill in 1801. By 1805 there were at least four or five sawmills on the Don; in 1824 the number of sawmills had increased to about eighteen. By this time the number of grist mills had increased to seven, including one each at Thornhill (1815), York Mills (1817-8), near Richmond Hill and east of Thornhill (both about 1822). There was one carding mill on the river in 1824.

6. SETTLEMENT, 1816-1850

Until after 1812 very few settlers had come to the Don area direct from Great Britain or Europe. After 1815 the number of immigrants to Canada steadily increased and more settlers of this type took land in the Don area. Since there was little free land in the watershed most of these were now forced to buy their holdings. The original owners were able to dispose of some of their unused land and with the proceeds and the savings of the war years were able to set up mills and other businesses. There were already one or two newcomers, such as James Hogg of Hogg's Hollow, and in a few years several others of the same type were taking the lead in different parts of the watershed. All the Reserves had been let by 1820. The Crown Reserves were disposed of by 1827, many being granted to King's College in 1823. A large part of the Clergy Reserves had been sold by 1845. Although many more farms had been occupied

by 1836, there were still considerable areas of woodland. Fewer houses stood in isolated clearings but, except on Yonge Street, they were usually grouped in "clearances" containing from ten to fifteen houses and separated by stretches of woodland, often on both sides of the road. Grist mills were usually in a clearance, but saw mills were frequently "back in the bush". There had been a good deal of development in the area of Taylor Creek and along the Dawes Road. Between the East Branch and Yonge Street there were considerable areas of uncleared land even in 1850. South of Eglinton much of the area was taken up by estates of a more residential character on which farming was a secondary activity, though usually carried on to some extent. On these properties the clearings were smaller than on the farms and the houses were often set back from the road and screened more or less by woods. These estates grew more numerous during the 1840's and '50's, the acreage of the property tending to become smaller and the houses larger and more comfortable. Some of these properties have given their names to streets or districts, such as Rosedale. The heavy immigration of the early 1830's ceased for a time after 1836, but it was renewed on an even larger scale after 1840. The subdivision of the large farms continued and many immigrants were thus able to buy farms in the area after spending some years in the United States or in Canada. By 1850 the process of settlement was drawing to a close in the Don Watershed. There was some further development after the building of the railways, especially in village settlement. However, by 1850 the area was well settled and the frontier had moved far beyond it.

7. LIFE IN THE DON WATERSHED BEFORE 1867

During the first seventy-five years of settlement in the Don Watershed the area passed through three phases of development. Although these differed considerably from one another they were all part of the process of developing a forest tract into an area of prosperous agriculture and small-scale industry. The first phase, lasting from 1793 until after 1815, was one of primitive frontier conditions. The Toronto region was then one of the newer settlements, but even then differed in some ways from earlier settlements in Upper Canada, from contemporary frontier settlements and from those in more remote areas a generation later. These differences tended to make the hardships of the first settlers somewhat less severe and to limit the period of primitive conditions. Most of the original settlers had some experience of frontier conditions and, partly owing to a definite government land policy, a larger proportion were in possession of some property and thus in a better position to maintain themselves until their farms became productive. They had from the first the advantage of the market provided by a town and garrison, and the efforts of government to improve communications, though not at first entirely successful, were more effective in the Home District than in other parts of the Province. The settlers fell into two main groups: the English-speaking settlers, chiefly of Loyalist origin, and the Germans in Vaughan and Markham Townships, most of whom also came to the area from the United States. The latter long retained their own language and a way of life that was on the whole simpler and more old-fashioned than that of the English settlers.

One or two successful seasons could place the settler in a position to provide for most of the needs of his family. In the interval the abundant game and fish were an important source of food, while deerskins, furs, maple sugar and ashes could usually be traded for the few necessities or luxuries not obtainable from the farm. Before long the clearing would provide a small surplus of wheat or other produce to trade to the merchants. There is evidence that some of the better-provided settlers in the Don area had reached this position within a year of occupying their land. Once well established an energetic family was almost self-sufficient, except for such necessities as iron and salt. However, few families in the Don area were forced to maintain this primitive independence for very long. A "potash" was opened in 1799 south of York Mills, where ashes could be traded for goods, and by 1805 there were already one or more stores and several taverns on Yonge Street within the watershed. Pedlars were also operating in the area and merchants often began by selling goods from door to door. Almost all buildings were of logs during this early period, except in the town of York. Settlers frequently built their own houses, but some availed themselves of the services of contractors and carpenters attracted to York by the demand for builders. Houses were often neatly built of squared logs. All but a few were of the simple type with only one hearth, not assessed for taxation. "Taxable" houses with two hearths were rare outside the town until after the war. There were a few frame buildings, but houses of brick or stone were rare even in York before 1815 and none are known to have been built in the watershed. Even before the war there had been a considerable improvement in the conditions of life but progress was slow compared to the succeeding period. The war brought suffering, loss and inconvenience, though the Home District suffered less from enemy action than the Niagara and London Districts. On the other hand the heavy government spending occasioned by the war was a valuable stimulus to the economy of the area and prepared the way for the more rapid development that followed increased immigration after 1815.

Farming during the early period was almost entirely for the subsistence of the family, the surplus of produce not even sufficing for the needs of the town and garrison. After 1812 the farms of the area grew steadily more productive. The growing demand of the market at York still absorbed most of the surplus produce until after 1840, but some wheat and flour were available for export in the 1830's. Farm methods varied very little before 1840. The primitive method of farming was based on the practice of clearing new land each year to provide ground for fall wheat, the chief cash crop. This ground was frequently seeded after the first crop of wheat and left in hay for a number of years. It could then be broken up with the plough and used for whatever crop seemed most suitable. When as much ground had been cleared as the owner could conveniently handle, the wheat ground was usually fallowed before planting. After several successive crops of grain, the land might be rested by leaving it in hay for some years, but there was little system in cropping and the same field was often sown to the same crop for long periods without variation. This system continued in use until the forties, though there were always in the Don area some farmers who were in advance of the general standard. From the first the farmers in the neighbourhood of York kept more stock than was the rule on pioneer farms and this tendency increased as the country was opened up, although the local supply of cattle was still insufficient for the demand in the early 1830's. After 1840 increased export

*A sketch of Castle Frank,
made in 1796.*



*United
Church,
Fisherville.*



*Loghouse
on Dawes
Road—
built about
1815.*



trade led to increased planting of wheat. Wheat and flour were being exported in considerable quantity in 1845. The demand strengthened during the next few years and through the fifties and sixties wheat or barley was the principal crop on most farms in the Province. In the Don area, however, there was a good deal of variation to meet local demand and mixed farming had made considerable headway before circumstances forced the other Ontario farmers to abandon their grain-growing routine.

Until the passing of the Baldwin Municipal Act in 1849, local government was carried on by officials elected at annual township meetings and responsible to the Justices of the Peace in Quarter Sessions. The Justices, who were appointed by government, had the real control and possessed wide and arbitrary powers. At first they used these in accordance with public opinion, for their interests were the same as those of the body of freeholders. After 1815 there was increasing friction between the Justices and a large section of the inhabitants. The old system had broken down before 1840 and reform was already overdue when the present system was established in 1849.

Between 1816 and 1842 the Don area passed through a phase of rapid development. The population of the townships, the quantity of land cleared and under cultivation and the value of property were all greatly increased. Mills were multiplied, some other forms of industry were introduced and there was some beginning of village life. A great change in the life of the area was obvious to the older generation of settlers by 1830. It was noticeable in the increased size of the clearings, the improvement in buildings, greater comfort in the houses and more attempt at neatness in their surroundings. These improvements were very unevenly distributed. The primitive conditions were still found on newly cleared farms and some settlers continued the old way of life from choice or conviction. The rate of progress was uneven. The younger generation complained that the area was not advancing as rapidly as it should, and to newcomers without experience of the real frontier, backwoods crudities were more noticeable than the improvements. Though the old self-sufficient life was being rapidly modified, the farms could still provide most of the needs of their owners. Shortage of ready money, high wages and recurring low prices led to complaints that it was impossible to make money out of farming, but since both the newcomers and members of established families were finding it profitable (if somewhat risky) to set up mills, stores and other businesses, farm incomes were probably greater than was supposed.

Uncertain economic conditions added to the discontent caused by unsatisfactory political conditions. This culminated, after a period of depression in 1837, in an outbreak of active rebellion, most of the important events of which took place in the Don Watershed. The extremists of both parties found considerable support in the area, and even if the actual fighting had taken place elsewhere the outbreak would have had considerable effect on the lives of the inhabitants. As it was, the life of the district was disrupted to a very marked extent. Any check to development was temporary, however, and the area made a good deal of progress between 1836 and 1842.

The rapid progress of the 1820's and 1830's was continued and surpassed during the next generation. The Don Watershed was still a backwoods area in the early forties although it was already comparatively well settled. Twenty

years later much of the rawness of a new settlement had disappeared. The change in the habits of the country people was already noticeable in 1851; during the next fifteen years it became so general that it was accepted without comment. Comforts and amenities once only available to a small number were now within reach of a large part of the population. The period was on the whole one of prosperity. Increased trade did away with the shortage of ready money that had been such a handicap in the earlier period. Better means, greater leisure and improved communications made possible wider social activities, and lessened the narrowness of the old life of the countryside. These activities were now better organized and churches and schools, which had been few and scattered before 1840, were now to be found throughout the area.

8. TRANSPORTATION, 1830-1867

The great period of road travel in the Don Watershed was between 1840 and 1875, and it was during the early part of this period that the system of road maintenance was reorganized in the case of the main highways. Three of these in York County had been built by the Government and were the property of the Crown. These were Yonge Street, Dundas Street and the Kingston Road. A system of tolls was adopted in part for all three roads before 1835. In that year an extensive improvement was carried out on Yonge Street, including straightening and grading of the whole road and macadamizing it as far as Yorkville. The rest of the road was considered "tolerable" in 1836-7, but was frequently nearly impassable in bad weather. The three highways were placed under trustees or commissioners in 1836, but the Government resumed control a few years later. A very considerable sum had already been spent on the Toronto roads before the Union of 1841. By 1849 these extraordinary expenditures amounted to more than \$700,000. The gross revenue from the tolls was steadily mounting and during the four years 1846-9 the receipts averaged more than \$10,000 above the routine expenses. In 1850 a private company purchased the Toronto roads for £75,100. By this time eighteen miles of the Kingston Road had been planked, Yonge Street macadamized to Holland Landing and Dundas Street to Erindale. The roads were considered to be good, except for two stretches of the Kingston Road and Dundas Street, both outside the Don Watershed. The building of the railways reduced the revenue from tolls, in spite of the increase of settlement. When these three roads and the Lakeshore Road were purchased by York County in 1865, the gross revenue from all four was said to be about \$32,000 a year and the purchase price for the four was set by arbitration at \$72,500. The County continued to collect tolls, renting the toll gates to individuals, until 1896, when all tolls were abolished. By that time the County had acquired several other toll roads owned by other companies. In the Don Watershed these included in 1851 the Davenport and Vaughan Road, later connected along Davenport Road with the Weston Plank Road, and a road to Todmorden by Winchester Street and Royal Drive. Later this road became a branch of the "Don and Danforth Road". This was macadamized along Danforth Avenue and Danforth Road almost to the Kennedy Road by 1855 and entered the city by Broadview Avenue and the present Gerrard Street.

The same process of improvement and re-alignment was going on more gradually in the case of the ordinary roads. Those in constant use were considered fairly good in the early fifties, but all roads became impassable for a period

in spring, both then and for many years after. The desire to avoid toll roads hastened the improvement and opening of the "common" roads and the building of the railways gave importance to the roads leading to the stations. By 1867 the roads of the area were in good condition for horse-drawn traffic.

The first railway in the area was the Ontario, Simcoe and Huron Union Railway, later called the Northern Railway. After some controversy, it had been decided to run the line west of Yonge Street, to serve the Humber area as well. Construction began in October 1851 and was completed to Allandale within a year. The Grand Trunk, opened in 1856, just crossed the southern end of the Don Watershed and until after 1867 the north-western part of the watershed had better railway service than the south-eastern part. However, no part of the watershed was now more than eight miles from a station.

By 1850, well built coaches of the Concord type were in use on the main roads of the area. There were two coaches a day each way on Yonge Street and the Kingston Road in 1851, hourly omnibuses to Yorkville from Toronto market place, and a daily bus each way to Richmond Hill. Freight was carried in wagons and travellers on foot could get lifts in these vehicles. It was still the custom to make long journeys in private carriages or to hire a carriage for a party. The need for frequent stops had led to a great increase in the number of inns. There were now between thirty and forty on Yonge Street between Toronto and Richmond Hill, and others were to be found on the other roads. The opening of the railways reduced the road traffic, especially the freight wagons, but Yonge Street continued to be an important artery and the Richmond Hill buses carried the mail until the opening of the electric line in 1896.

9. THE GROWTH OF TORONTO

The town of York had extended into the Don Watershed until just before it became the city of Toronto. The Government Reserve, known as the "Government Park", was in 1819 granted to trustees as part of the endowment of the General Hospital. There were no assignments until ten years later, except the ground occupied by St. Paul's Roman Catholic Church, erected in 1826. Very few assignments were made before 1831. In that year Gooderham and Worts built their windmill just outside the watershed and by 1834 about forty houses had been built in the section south of Lot Street (Queen). The area filled up gradually during the forties and fifties and by 1860 the built-up area stretched up Parliament Street almost to Bloor Street, although the streets in the angle between the Necropolis and St. James' Cemetery were still sparsely occupied. Beyond the Don Bridge there was a straggling suburb from the 1830's. This area south of Queen Street was then in the "Liberty", or area controlled by the Corporation but outside the city. Except for a few houses along the east side of Yonge Street, there was little development in the part of the watershed south of Bloor Street and north of College Street. After 1850, subdivision in this area was extended more rapidly and by 1860 a large part of it was built up, though in a somewhat scattered and irregular manner. This was a more fashionable area than the "Park", though not yet so fashionable as it became after 1870. The Liberties were annexed to the city in 1858, bringing the north limit to Bloor Street, west of the Don, and to Queen Street east of the river. There was no further annexation until 1883, although new subdivisions were made in the

watershed, north of Bloor Street and east of the Don. Yorkville was annexed in 1883, Riverdale in 1884 and South Rosedale in 1887. A few minor annexations were made in 1888, but the limits were now far beyond the built-up area in some directions and there was no further extension of any importance for about seventeen years. During these years the sparsely occupied areas within the limits were filling up and there was considerable suburban development in the watershed, especially from the Hill to St. Clair and in North Toronto. A series of annexations between 1905 and 1912 brought the city to its present limits on the north and north-west, while others extended the eastern limits and added smaller sections north of Danforth Avenue. These last were extended in 1914 and 1925. Parts of these areas were still unoccupied in 1918. In the watershed, immediately outside the limits, there was a great deal of speculative subdivision before 1914. Large areas were laid out in streets, but for various reasons actual occupation was delayed and only began on a large scale in the 1920's. It was now the custom for such areas to continue as part of the Townships or to form separate municipalities. This expansion into the watershed continued with only slight checks during the 1930's, although it was somewhat slower east of the Don and north of Danforth Avenue than in the Leaside and Forest Hill areas.

Since 1945 the process of expansion has gone on with astonishing rapidity. The rural area of North York has been greatly reduced, the urban area is expanding in East York and portions of Vaughan and Markham are becoming suburban. Before long about half the Don Watershed will be definitely in the urban area and already the problems of the region are interwoven with those of the city.

10. VILLAGES, MILLS AND INDUSTRIES

Yorkville and Thornhill were the principal villages in the 1830's, although there were already hamlets at Davisville, Eglinton, Hogg's Hollow and Richmond Hill. Yorkville, the largest village in the watershed in York Township, owed its importance at first to Bloor's and other breweries and later to its brickyards and other industries. It was laid out about 1830 and was to some extent suburban from the first. After 1858 part of the village below Bloor Street was within the city and in the 1860's it was surrounded by a residential area. Hogg's Hollow owed its name and its existence to the mills built there by James Hogg before 1820. A second village grew up near St. John's Church, built in 1817-8, and when a post office was opened the two were included under the name "York Mills" though the old name continued in use also. York Mills was always a straggling group of hamlets rather than a compact village but derived considerable importance from the large mills in the vicinity. By 1912 it was on the northern edge of the city, as Yorkville had been sixty years earlier, and is now surrounded by rapidly growing suburban areas. The other villages on Yonge Street in York Township—Davisville, Eglinton, Willowdale, Newton Brook and Lansing—were smaller places. Some beginnings of all of them can be distinguished before 1830. They owed their importance to inns and stores, serving travellers on Yonge Street, and to the neighbouring mills. Davisville and Newton Brook had early potteries and sawmills. The others gradually acquired smaller industries of the usual kind. Eglinton and Davisville were absorbed into the suburban area in the 1880's and became part of North Toronto annexed in 1912. A similar process of urbanization has been going on in the case of Lansing, Willowdale and

Newton Brook during the last twenty-five years. Todmorden was named by John Eastwood, who had purchased Skinner's Mills in 1823. The village grew up during the next ten years. In 1851 the main part of Todmorden was in the valley near the mills but ten years later part along the Don Mills road had become more important. In the sixties it was grouped with Chester and a post office opened under the name of "Doncaster", serving the whole neighbourhood. The village grew in importance as various industries such as brick-making and paper-making developed in the area. Chester became part of the city in 1909 and Todmorden, though still part of East York Township, is now surrounded by the built-up area. The more important villages in Scarborough Township lay outside the Don Watershed, but there were several small settlements along the Dawes Road or in the north-east part of York Township. None of these became places of any size and several had practically disappeared after 1900 before suburban development began to make much headway in this part of the watershed.

Thornhill began to be a considerable village after 1820. At first the village consisted of two equally important parts on either side of the valley, but by the 1830's the southern section was the real business centre. Thorne and Parsons' large tannery and flour mills were already flourishing and the population was believed to be about 300. The village continued to grow through the forties and fifties, but by the sixties was being affected by the growth of Richmond Hill as well as by its proximity to Toronto. It remained about the same size through the latter part of the nineteenth century, but the neighbourhood began to increase in population as communication with the city became quicker and easier. In recent years there has been a good deal of subdivision south of the village although it does not yet extend very far from Yonge Street.

Richmond Hill began about the same time as Thornhill, but was rather a halting-place at the halfway point on the journey to Holland Landing than a mill village and was a smaller place until 1850. By that time the number of mills and small industries in the neighbourhood had "been greatly increased. Richmond Hill had always been important as a local centre and post town, and it now began to grow into a large village. However, the area was too closely connected with Toronto for Richmond Hill to develop into a town. During the 1890's, when the rural industries were disappearing, the village declined somewhat in population. Improved rail and road communication helped to offset this loss of importance, and the village began to grow once more after the First World War. It is now as much the centre of a dormitory area as of a rural district, but is not yet entirely suburban. Richmond Hill is the only incorporated village in the rural part of the watershed.

Maple in Vaughan Township dates as a village from the late 1840's. It gained importance from the opening of "Richmond Hill Station" nearby and was a fair-sized village by 1860. Maple grew somewhat in size and importance in the next forty years, but was never a very large village and has changed less in the past fifty years than the other villages of the township. The present village of Concord grew up at "Thornhill Station" on the Northern Railway. It was, and is, a small place but has continued to exist as a village while some larger settlements have practically disappeared. There were several other villages of 100 to 200 inhabitants in this part of the watershed in the 1880's.

These little places had usually one or two small industries. Some were as old as the larger villages and after 1865 most had their own post offices and a certain importance as local centres. In most cases the name has remained attached to a school, church or isolated store, but only occasionally is there a group of houses large enough to form a hamlet. Where the locality is beginning to build up the name is sometimes revived for the new suburb, but if this does not occur it is likely to be forgotten.

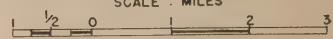
Water-driven mills on the Don were probably most numerous about 1860. There were then 27 water-driven sawmills and 23 grist or flour mills using water power at least in part. The sawmills may have been more numerous a few years earlier, but the numerous changes of ownership or position and the frequent destruction or rebuilding of mills makes the story difficult to follow. By 1860 some grist mills were using steam as well as water and some were now using steam alone, as were some of the sawmills.

The sawmills began to grow fewer in the 1860's. Portable sawmills increased in number in the 1880's and 1890's, but it is not likely that the number of these was as great as the total for 1860. About 1850 there were three or four "woollen factories" in the Don Watershed and perhaps as many carding and fulling mills. Only two woollen factories appear on the map of 1860, one west of Richvale and the other the large woollen factory in Milne Hollow on Lawrence Avenue East. The latter continued to be an important industry through the rest of the century. Wagon-makers' shops were fairly common in the watershed by 1851 and carriage-building was the mainstay of many smaller villages through the nineteenth century and was an important activity in the larger ones as well. The shops were not usually on as large a scale as the city firms, but the strong demand enabled them to maintain themselves until the 1890's. By that time the industry was being organized on a large-scale basis, types of vehicle were more standardized and the demand had been reduced by the development of railway service, both steam and electric. The small plants in the Don area had begun to disappear some time before the motor became a serious rival to the horse. Brewing was being carried on in the "Park" area of Toronto, at Todmorden and at Yorkville in the 1830's. Two of the Yorkville breweries, Bloor's and Copland's, had been given up by 1857, but Severn's brewery continued to operate until near the end of the century. Later, brewing tended to be concentrated in Toronto and two of the breweries in the east end were near the Don. One is still used for this purpose. A distillery was a usual accompaniment of a grist mill in the early period and some were to be found on the Don, such as Eastwood's distillery at Todmorden, by 1827. However, there was no important development of distilling outside Toronto. Gooderham and Worts' distillery was just outside the watershed, but there was probably another in the area on Palace Street in 1851 and in 1869. Brick-making began very early, but at first was carried on in a scattered fashion, one or two kilns being burned where suitable clay could be found. Bricks were used chiefly for chimneys, and there were very few brick buildings in the town in 1812. After 1815 the use of brick became more common. A number of large brick houses were built before 1830, but regular brickyards do not seem to have been opened until about 1840, when brick-making became a business rather than a trade. Brick-making had become an important industry at Yorkville by 1851 and continued for more than thirty years. Bricks were

POPULATION

1 DOT REPRESENTS 100 PEOPLE

SCALE : MILES



being made in the lower Don Valley in the 1840's and several brickmakers were living in the Park area in 1846. Later, brick-yards were opened near Todmorden. By 1880 these yards were becoming well known and brick-making is still carried on in that part of the valley on an important scale.

In the late sixties a demand for field tiles and drain pipes led to the setting up of potteries at Yorkville and Todmorden, as well as the older ones at Davisville and Newton Brook. Paper-making, another early industry, is still carried on near Todmorden. The second paper mill in Ontario was opened on the Don by John Eastwood in 1825. By 1860 there were at least three paper mills in the valley, either at Todmorden or near the Forks. Later the various mills became the property of a single firm and they are now represented by a factory north of Todmorden, near the site of one of the old mills.

Many other small-scale industries of various types were to be found in the area between 1850 and 1890. These included factories making special types of farm tools, such as grain cradles, and others making farm machinery. Of the latter the most important was the plant at Patterson, moved to Toronto before 1890. Tanneries, wooden ware factories, lath, planing and turning mills were common after 1860. There was a starch factory for many years in connection with the flour mills at Todmorden. At the period when these rural industries were disappearing the part of the city near the Queen Street bridge was developing into an industrial area. Industrial development has been very rapid in some parts of the watershed in recent years and in some the number of plants is steadily increasing at the present time.

11. THE WATERSHED SINCE 1867

Much of the story of the Don area after 1867 has already been told in the last three sections. It is not necessary to treat this period in detail. Settlement was practically completed before Confederation and some parts of the watershed were to change very little in their outward aspect during two generations. Even in these areas, however, some influences were at work which have a direct bearing on the need for conservation.

Competition from newly developed areas and changes in demand accelerated the shift from the old style of farming during the seventies and eighties. This had begun earlier in the Don area to meet the requirements of the city market, but mixed farming with emphasis on some particular line such as dairying, horse breeding, poultry farming or hog raising now became the rule in Southern Ontario. This led to the introduction of better methods and, except in some particular areas, checked the loss of fertility that had already been marked in the 1870's. At the same time shortage of timber and a demand for a lumber of a different type increased the amount of clean-cutting and reduced the extent of the remaining woodlots. Conditions of life in the country changed less rapidly than in the city and many conveniences available to the average city-dweller were out of reach even in the villages. This increased the movement to the cities and, with the attraction of free land in the west and some agricultural depression at home, was responsible for the decline of population in Vaughan and Markham Townships noticeable in the census returns for 1871 and 1881. This decline was even more marked in the next decade and continued until

after 1911. In York Township, and to some extent in Scarborough, this tendency was offset by the spread of the city population into the townships. It was not until after the First World War that the concentration of population near Toronto began to have much effect on the northern part of the watershed and even now population is very unevenly spread over the area.

PART II—LAND USE

I. GENERAL CONSIDERATIONS

1. PURPOSE OF THE SURVEY

A soil conservation survey is made to obtain an inventory of the soil resources of an area and of the use to which the land is being put, and to assess the capability of the soil. The soil conservation survey is the first step in instituting a soil conservation program. The purpose of such a program is to adjust land use and management to the capabilities of the soil.

2. DEFINITION OF SOIL

Soil is the top, weathered portion of the unconsolidated material on the surface of the earth in which seeds find optimum conditions for germination and from which plants draw moisture and sustenance. Soil has its own properties and characteristics which can be observed and measured and according to which it can be identified and classified.

A vertical cross-section of soil reveals levels called "horizons". The complete section is called a "soil profile". A soil is described in terms of its profile.

The soils in Southern Ontario were formed under a vegetative cover of hardwoods and mixed hardwoods on glacial drift in a cool moist climate.

3. CLASSIFICATION OF SOILS

The soils of Southern Ontario belong to the zonal group called the "gray-brown forest (or podzolic) soils".

Within this group of soils the next division is according to the parent material. As the parent material was deposited by ice, the mode of deposition, or physiographic origin, is used to classify the soils. Soils which are developed on similar material with the same mode of deposition belong to the same "association".

Within one association of soils there are different degrees of soil formation, depending on different balances of the various soil-building forces. The main factor in soil building is moisture, so that the soils in an association may be classed, according to natural internal drainage, into series. Three degrees of drainage are recognized:

Well drained — optimum profile development.

Imperfectly drained — lower horizons shallower, different development.

Poorly drained — poor profile development.

When to the name of a series is added a textural class—as "loam", "clay loam", or "sandy loam"—a "soil type" is identified. Thus "Peel clay loam" and "Milliken loam" are soil types found on the watershed.

In the soil profile of Berrien sandy loam the deep leached horizon is clearly seen between the dark topsoil and dark (reddish brown) subsoil.



Peel clay, when worked, breaks up into heavy massive clods.



The full profile of Milliken loam is exposed right down to the parent material in this excavation. The deeper coloured subsoil (B horizon) stands out clearly.



4. EROSION

Surface run-off of water removes soil material which is either deposited in the valleys or carried away by streams. This wearing action is restricted by vegetation—either grass, shrubs or trees—so that it does not proceed very rapidly. As the upper horizons of the soil are removed, weathering penetrates the parent material and the soil profile is maintained. This is called “normal” or “geologic” erosion. When the protecting vegetative cover is removed and the topsoil is disturbed by cultivation, the process of erosion is speeded up and the top horizons of the soil are worn away at a greater rate than the profile can be built. This is “accelerated” erosion, and is what is meant in referring to “erosion” throughout this report.

Erosion is easily recognized through the fresh deposits of soil at the bottoms of slopes commonly called “soil wash”. When the headward erosion of streams in their courses cut into the soil, gullies are formed, and this type of erosion is called “gullyng”.

Three types of water erosion can be described—“sheet”, “rill”, and “gully”. Gullies in many cases are merely the evidence of severe sheet erosion, which in itself is less obvious. Rill erosion is done by water flowing downhill in small channels. Rills may be obscured by subsequent cultivation, but if they become entrenched they can soon develop into gullies.

5. PRESENT LAND USE

The chief forms of land use are:

- Urban (housing, industry, etc.).
- Recreational (parks, golf courses, etc.).
- Agricultural.

Soil conservation is mostly concerned with agricultural land which may be broken down as follows:

- Cultivated (in a crop rotation);
- Pastured (wild pasture, or tame pasture left in sod for a period longer than the usual rotation);
- Woodland (which may or may not be grazed, but which is not cultivated);
- Idle land (not forested and with neither grazing nor cultivation).

These are listed in order of decreasing intensity of use. Pastured, wooded and idle lands are less susceptible to erosion than cultivated land.

Cultivated land may be further classified with reference to the uses which expose it to erosion as follows:

- Fallow;
- Intertilled row crops;
- Grain;
- Hay and pasture (in rotation);

Fallow is the most susceptible to erosion; sod for hay and pasture, the least.

6. METHODS OF SURVEY

The soil is examined for identification wherever exposed in road cuts and excavations. Features of the profile, especially depth where erosion is estimated, are observed by use of the soil auger. Slopes are measured by the use of the Abney level. Where the slope is mapped the slope group into which most of the land of a unit area falls is indicated.

7. THE LAND USE CAPABILITY CLASSIFICATION

A system of classifying land with respect to the need for conservation measures has been worked out by the United States Department of Agriculture Soil Conservation Service. With due consideration to differences in conditions in geographic regions, it can be applied in Ontario and is used by the Farm Planning Service at the Agricultural College and in the river valley conservation surveys. It is called the Land Use Capability Classification. It was applied to all the agricultural land on the Don Watershed. The following table outlines the classification:

Land Suitable for Cultivation

- I. With no special practices for soil improvement or conservation.
- II. With simple practices for soil improvement or conservation.
- III. With intensive practices for soil improvement or conservation.

Land Suitable for Occasional or Limited Cultivation

- IV. With limited use and intensive practices.

Land not Suitable for Cultivation, but Suitable for Permanent Vegetation

- V. With no restrictions or special practices.
- VI. With moderate restrictions in use.
- VII. With severe restrictions in use.

Land not Suitable for Cultivation, Grazing or Forestry

- VIII. Suitable only for wildlife.

Simple practices to restore and improve soil or to protect it against erosion include mulching, green manure crops and winter cover, open drains on imperfectly drained soil and cultivation on the contour. Intensive practices include tile drainage of poorly drained land and a system of contour cultivation, strip cropping, diversion terraces and grassed waterways to check erosion.

For Class IV, VI and VII land, restrictions in use are applied so as to maintain a permanent vegetative cover and to prevent the soil from being opened up to erosion. They include, on meadow and pastureland, restricted or rotational grazing, and in forested land managed tree cutting.

Class I land can be farmed by ordinary good farming practices. Lower classes of land, if used in the manner specified, can give sustained yields without further deterioration. Without special management or restrictions in use, the lower classes of land will give progressively smaller returns and will deteriorate.

Factors which downgrade soils in this classification are:

Low inherent fertility.

Low organic content.

Erosion.

Slope and susceptibility to erosion.

Soil compaction and poor tilth.

Inadequacy of natural surface and internal drainage.

Topographic restrictions in use of implements, and a number of features such as droughtiness, stoniness and shallowness over bedrock (which, however, are not commonly found in this watershed).

Two further points must be stressed. First is the importance of good use of Class I land and land of high inherent fertility requiring artificial drainage to bring it into optimum use. Unless the fertile land is used to greatest advantage the demand for production, either on the individual farm or in a region, puts a burden on the lands of lower capabilities which only makes them poorer.

The second point is with respect to water. Contour cultivation and cropping programs designed to restore and sustain organic content in the soil can check erosion and save the soil. Of equal or even greater importance is the conservation of moisture. The measures that save the soil also increase the capacity of the soil to absorb and retain moisture. This benefits agriculture directly and the streams indirectly.

8. FARM PONDS

Increasing demands for water for domestic, industrial and agricultural use and diminishing underground supplies have made the whole problem of supply a critical one. Control of surface flow and storing of water should go a long way to meet demands for water. Other uses are for fire protection, recreation, domestic supply, irrigation, waterfowl and fish.

2. SOILS

The following soil types are indicated on the Soil Map of York County¹, are found on the Don Watershed and are described in detail in the full report:

Pontypool sand	Brookston clay
Brighton sand	Colwood loam
Milliken sandy loam	Fox sandy loam
Milliken loam	Berrien sandy loam
Peel clay	Chinguacousy clay loam
Simcoe clay	Bottom land

3. PRESENT LAND USE

1. MAIN DIVISIONS

The land of the Don Watershed has a wide variety of uses. From the industrial and commercial centre of Toronto near the mouth of the river to the headwaters there are quite clearly recognizable zones of land use. At the river

¹The Soil Map of York County has been prepared by the Soils Department of the Agricultural College, Guelph. It has not yet been printed for distribution but photostat copies at a nominal charge may be obtained from that Department.

Most of the watershed is still in farm land.



Grain, grasses and clovers are sown on a large part of the land on the farms.



On the edge of the city horticulture and other specialized uses take over.



mouth are the port and rail facilities with industries. Surrounding the industrial zone is a belt of commercial and financial houses. The residential and retail zone of the city covers the lower five miles of the watershed, with some incidental recreational use of the river valley itself.

Surrounding the city proper is an urban zone of separate municipalities, including Scarborough, Leaside and East York, in which the pattern of the city is repeated with rail service, industry, commercial and residential buildings. Beyond the urban zones is the "rural-urban fringe". This is characterized by residential areas, most of which have fewer urban facilities than the city and are essentially "suburban" in character, small holdings, stretches of "subdivided" land which are currently used for nothing but which are presumed to be future residential areas, a few industries, some recreational land and the nuclei of old villages.

The largest and widest zone is agricultural, devoted largely to production of fluid milk for the Toronto market. This belt also reflects strongly the influence of the city with many examples of land use not typical of a farming region. The zone furthest from the city has a less specialized form of agriculture, but the stretches of bush and wasteland have special uses induced by the nearness to the city.

2. URBAN LAND

Although the history of the growth of Toronto may be related to some extent to the physiography, present land use bears little or no relation to the soil pattern. The streams are mostly carried in the city sewer system and the land is effectively drained. The main river itself is important to the urbanized land in the two conflicting interests of recreation and sewage disposal. In the survey of land use, all the area completely built up was classed as urban with no further description, as such land is beyond the scope of a soil conservation program.

3. THE RURAL-URBAN FRINGE

Land drainage and tile from septic tanks are two aspects of suburban land use which are poorly adjusted to the soil pattern. The minimum area required by law for installation of a septic tank is fixed for a township without reference to soil type, and there is considerable difference in the characteristics of the soil. Housing subdivisions generally follow the old rectangular survey which is at an angle of roughly 45 degrees with the natural grain of the country. Grading of roads, concrete foundations and earth fill on lots restricts surface drainage to the road pattern which is inadequate.

Use of land for the purposes of recreation is an important feature of the rural-urban fringe. There are few parks for public use—one has recently been acquired by the City at York Mills. Real estate subdivisions present a unique form of land use.

4. TYPES OF AGRICULTURE

The production of fluid milk for the Toronto market and the breeding of good dairy stock are outstanding features of agriculture on the Don. The country around Toronto is rather different from more remote agricultural districts with

respect to soil conservation. The changeover in the management of a farm to embrace soil conservation practices often requires considerable capital expenditure, or possibly sustaining a temporary loss in favour of greater returns at a later date. The favourable economic position of farmers in the Toronto region should make the introduction of new methods more feasible.

5. WOODLANDS

On the good farmland, woodlots are small and few. Some large stands are found in the river valleys and in the rough country near the headwaters. Except for park areas, existing or yet to be established, and a proposed Authority forest, the management of woodlands will remain a feature of agricultural land use.

6. AGRICULTURAL LAND USE

The largest part of the watershed is still farmland and is likely to remain so. Soil and water conservation will always be primarily a farm problem.

7. PASTURE

Land was classified as pasture when it was under sod, used for grazing and had not been seeded within five years, that is, it was obviously not in the regular crop rotation. Much of it was on slopes, bottom land or at the backs of farm properties.

8. GRAIN AND HAY

These are the main crops for which land is cultivated and are included in the rotation. Cultivation for grain exposes land to erosion and, except for the stubble ploughed under, it extracts fertility from the soil. Grass and legume mixtures for hay, once established in sod, protect soil from erosion. Sod is a soil builder because it returns some fertility to the soil and it builds up the organic content.

9. ROW CROPS

Crops grown in rows which allow cultivation while they are growing expose soil to erosion, use great amounts of moisture, take fertility from the land and return little or nothing to it. Crops included in this classification are corn, roots, peas and potatoes.

10. HORTICULTURE

Orchards, berry patches, gardens, truck gardens and nurseries were separated from farm cropland in mapping land use.

11. METHOD OF MAPPING

The use outlined above were observed directly in the field and plotted on aerial photographs as base maps.

4. FARM PONDS¹

1. THE VALUE OF FARM PONDS

Water supply on farms in Southern Ontario is obtained from wells, streams, springs, ponds and cisterns. With the mechanization of farm operations, the

¹The chapter on Farm Ponds from the full report has been published in a twenty-eight page bulletin by the Don Valley Conservation Authority. The six types of ponds described are each illustrated with four photographs and drawings which serve as an aid in building the particular pond required. The Bulletin may be obtained on application to the Secretary of the Authority, Roy Cadwell, 639 Carlaw Avenue, Toronto.



Figure 1—The above photograph is of a well-managed by-pass pond. The concrete spillway section and stop logs were put in before the pond was adapted to the by-pass type, and are actually unnecessary. The inlet to the pond is beside the tree on the far side.

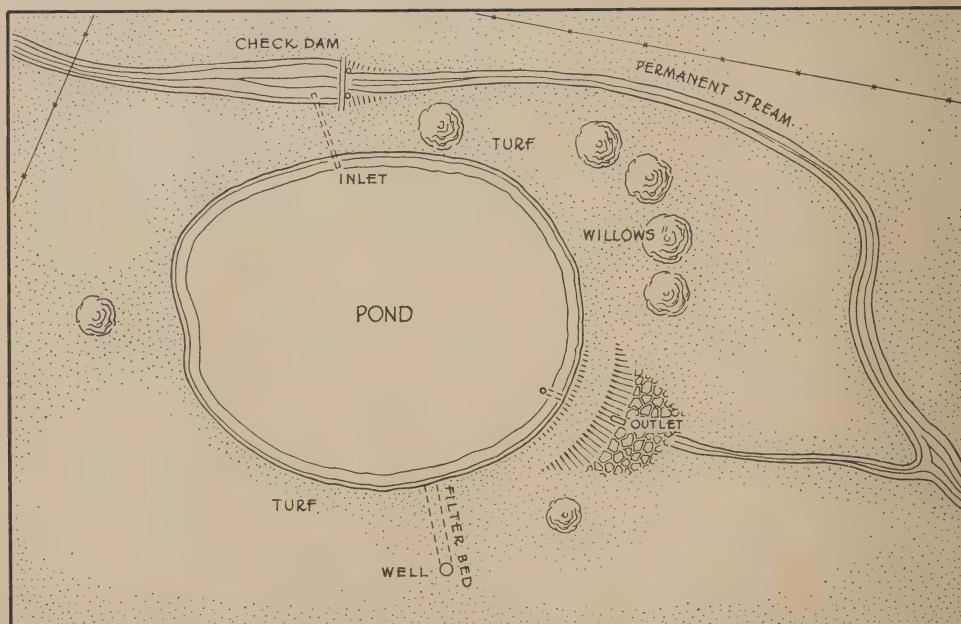


Figure 3—A plan of the sketch shown in Figure 2, indicating the small removable check dam which diverts water from the stream into the pond, the overflow from the pond to the stream, and also the position of a gravel filter-bed which permits clean water to seep into a shallow well from which the domestic water supply is drawn.

The illustrations above and on the opposite page show an example of a by-pass Pond.



Figure 2—A sketch of the same pond shown in Figure 1, with the concrete spillway section omitted and the stream from which the pond gets its water shown more clearly.

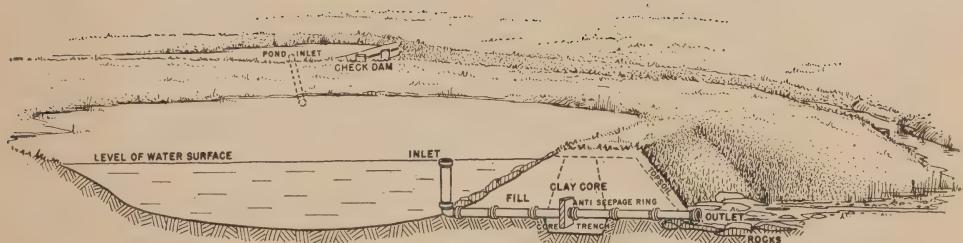


Figure 4—A section of the sketch shown in Figure 2 with details of earth dam construction and the inlet to the discharge pipe which controls the level of the pond. It should be further noted that the earth dam has a clay core and that the anti-seepage ring is a concrete block which prevents water seeping along the outside surface of the pipe.



Figure 1—This attractive pond is formed by a small concrete dam (not shown in the picture) crossing a permanent stream which is fed by springs in the distant hills.

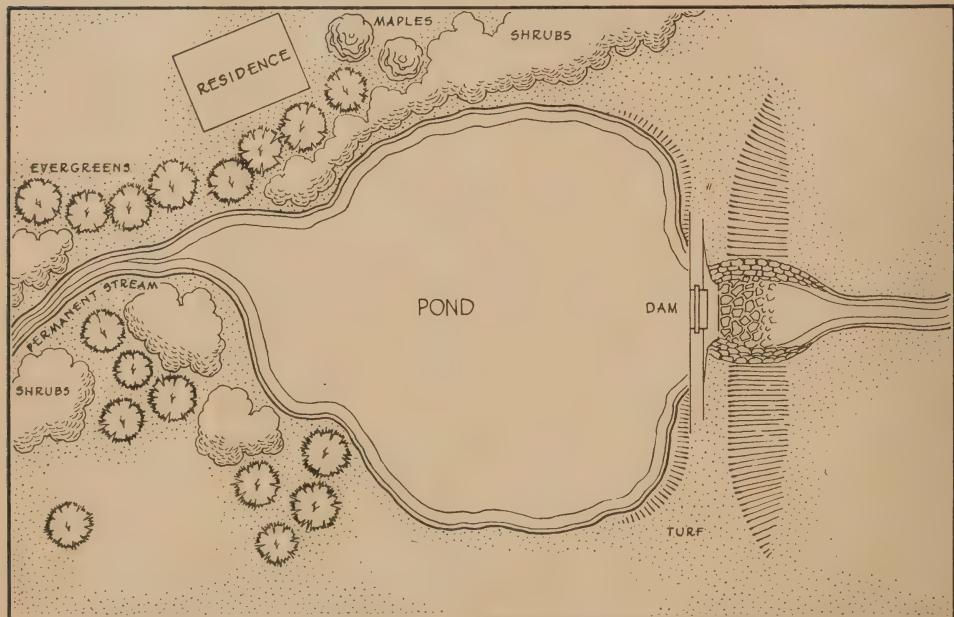


Figure 3—A plan of the pond shown in Figures 1 and 2, indicating the position of the dam in relation to the other features.

The illustrations above and on the opposite page show an example of a Permanent Stream Pond.

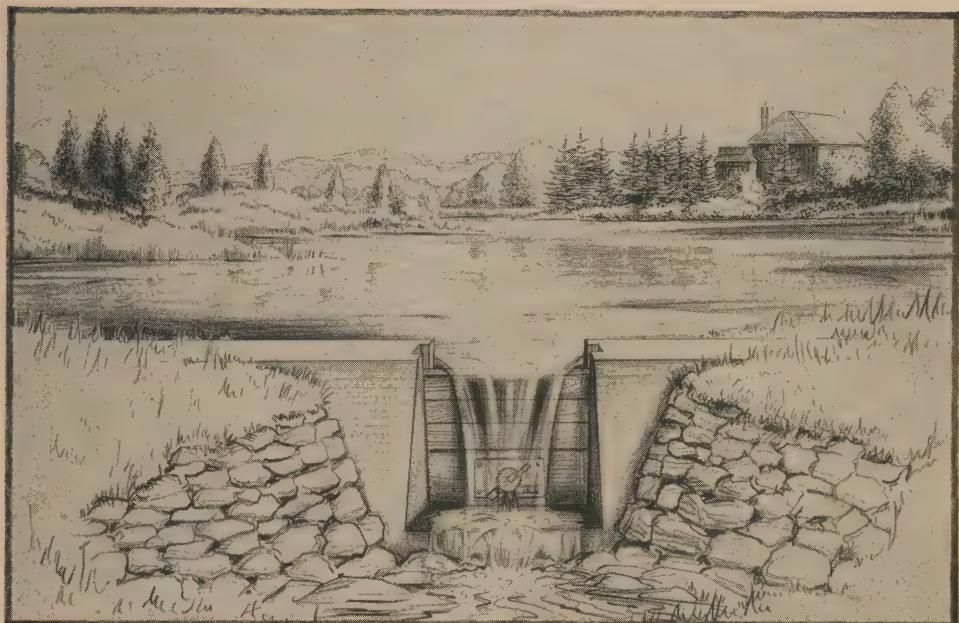


Figure 2—A sketch of the pond shown in Figure 1, indicating the position of the concrete dam. The water level is maintained by stop logs a few inches below the top of the dam, and a simple valve in the lowest log allows water to be drawn from the bottom of the pond.

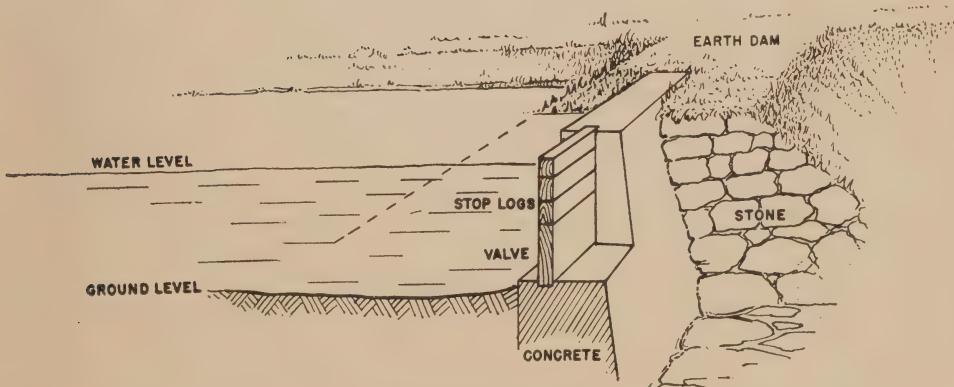


Figure 4—A section through the concrete structure. It should be noted that the floor of this section of the dam is level with the bottom of the pond. The concrete is set well back into the earth dam and must go deep enough into the stream bed that it will have a firm base and not allow water to leak under it and will not heave with the frost. The stop logs may be removed in anticipation of very heavy flows. If the spillway section with logs removed is as large as the stream channel which feeds the pond, no water should go over the earth structure of the dam.

improvements in sanitation and with larger and better herds there is an increased demand for water. Supplies, on the other hand, are diminishing. Streams, springs and ponds are drying up or are being filled in, partly through mismanagement but largely from the gradual change in the physical features of the land which goes along with the change in land use. Small ponds offer the best form of management and provide reservoirs in time of drought.

2. TYPES OF FARM PONDS

Six types of farm ponds, namely; the dug-out pond, the spring-fed pond, the by-pass pond, the run-off pond, the permanent stream pond and the temporary pond are described in detail.

Certain important factors connected with the building of a dam are emphasized such as the impervious section or core, slopes of the dam, spillway, discharge pipe, management and stocking with fish.

Detailed instructions are also given for the actual construction of the dam.

5. PONDS ON THE DON

1. PURPOSE OF THE SURVEY

A survey was made of all existing ponds on the Don Watershed to find out as much as possible about the location, construction and management of ponds.

2. METHODS OF SURVEY

The locations of ponds were determined by stereoscopic examination of aerial photographs, by questioning local residents and by following main streams on foot. Each pond was visited and notes made of the construction and size, particularly of the spillway and its capacity, conditions during flood and function of the pond.

3. DISTRIBUTION AND FUNCTION OF PONDS

The number of ponds surveyed was 41. Of this number, 35 are on the Don River and its tributaries, 6 are fed by springs or are merely excavations filled by ground water. The heaviest concentration of ponds is in the first and second concessions of Vaughan Township.

Half of the ponds serve a recreation purpose, including swimming, boating, property beautification and irrigation of lawns and golf courses. Thirteen supply water for cattle or human consumption. Other uses include waterfowl, fish and fire protection.

4. TYPES OF PONDS

Four types of artificial ponds were found:

- (a) Dug-out ponds.
- (b) By-pass ponds.
- (c) Spring-fed ponds.
- (d) Ponds formed by dams in permanent streams.

Ponds fed entirely by surface run-off, such as are described in American literature, were not found. Further investigation is necessary before the feasibility of this type can be proven in this region. Natural ponds were found to be neglected or poorly managed and in most instances were being obliterated by trash dumped into them.

5. DUG-OUT PONDS

This type of pond tends to degenerate by filling with sediment and vegetation, aggravated by trampling by cattle.

6. BY-PASS PONDS

There are two examples of this type on the watershed. They are noteworthy because they provide a good reservoir at a low cost of construction.

7. SPRING-FED PONDS

Nine ponds receive their water supply from springs. Some are built near the headwaters of streams and some are fed by springs on the sides of valleys of the main streams.

Usually spring-fed ponds are not frozen solid in winter and the water is relatively warm. In summer the water is cool. This is a most favourable arrangement for keeping trout.

8. PONDS BEHIND DAMS ON PERMANENT STREAMS

This type consists of a pond covering a part of the stream valley held behind a dam built across a permanent stream. The river had been widened and deepened, in some cases, to make a greater capacity. There are 26 ponds of this type, used mainly for beautification, recreation or for irrigating lawns and golf courses. Only a few were used for agricultural purposes and these were on a scale too large for the average farmer.

Failures in earth structures were due to one or more of a number of faults. These include: washouts due to insufficient spillway capacity; leaks caused by sod, topsoil, gravel and stones in the dam or by burrowing animals and decaying roots; deficient compactness of the dam; slopes too steep with consequent wave erosion; trampling and pollution by cattle; and filling of the pond by sediment. Other failures, including those of concrete structures, are related to ice conditions or to undercutting by water spilling over on to the soft river bottom instead of a hard apron.

9. LOCATION OF PONDS

All of the watershed except the sandy soils of the moraine and the deltaic sands seem to be able to hold water in ponds. The surface relief favours pond building throughout, even on the Peel plain which is fairly deeply dissected by streams and watercourses.

The most favourable zone for pond building is in the rolling country with loam, clay loam and clay soils around the moraine on the headwaters of the

streams. Small dams for farm ponds should not be built on streams with watersheds in excess of 500 acres, except of the removable type, or unless the proprietor can afford costly structures.

10. PONDS FOR WILDLIFE

Except for the few fish ponds noted above there is little evidence of artificial or natural ones harbouring any significant wildlife. Any farm pond may be managed, using trees and shrubs, in a way that affords favourable environment for desirable birdlife.

6. LAND USE CAPABILITY

1. CLASSIFICATION

The land use capability classification is a convenient yardstick for measuring the capability of land. The eight capability classes are described in the following paragraphs. Following this is a description of the way in which the various combinations of soil type, slope and erosion were assigned to the eight classes on this watershed.

2. CLASS I LAND

This is level or very nearly level land, well drained naturally, which is neither too heavy to cultivate nor so light as to deteriorate rapidly. It includes all the fertile loamy soils, well drained and not erodible.

3. CLASS II LAND

This is land of slightly lower capability which either yields more poorly or requires special management to bring it into full production of the widest range of crops. Soil may be downgraded to this class for one of a number of reasons: lack of fertility, tilth and humus content, susceptibility to erosion or inadequate drainage. According to its natural limitation, it must be managed to build up the soil, resist erosion or be artificially drained. The simple practices required on this land include green manure, restricted rotations and application of fertilizer to build up the soil, simple contour tillage to check erosion or field ditches to improve drainage.

4. CLASS III LAND

This is the land of lowest capability which can be regularly cultivated in a four or five-year rotation. It may, however, be too poorly drained to give good yields of all crops or it may be so eroded or susceptible to erosion that it cannot support crops without some check against soil wash and gullyling.

Intensive practices of drainage, tile under-drainage and permanent ditches are required on poorly drained land of this capability class. On Class III land subject to erosion intensive practices include contour tillage and seeding, contour strips, diversion terraces and grassed waterways.

Some Class III land is susceptible to erosion but is not suitable for intensive contour practices. Emphasis on soil-building crops and limitation on cultivated and intertilled crops are required.

*A first class farm on
Class I land.*



*A gentle slope induces
erosion. This is Class II
land which now has some
measure of protection.*



*Class IV land shows clear
evidence of erosion. Contour
tillage is not practicable but the land needs long
rotations, winter cover and
sod to protect it.*



5. CLASS IV LAND

When cultivated, this land may not be able to carry a full range of crops or give a high yield. It may be unsuited to some tillage operations, especially those requiring heavy powered equipment. Also included in this class is land which is eroded or seriously susceptible to erosion, on which contour tillage is not sufficient or cannot even be practised due to irregularity of slope. Class IV land, therefore, requires a greater proportion of soil-building crops (grasses and legumes) than the ordinary rotation, and the soil cannot be exposed by cultivation as much. Special devices to check erosion are required; diversion terraces and grassed watercourses to carry away surface run-off harmlessly are needed.

6. CLASS V LAND

In this class are put those soils which are wet and cannot be artificially drained or which are subject to annual floods and therefore are not suitable for cultivation. This land can support permanent vegetation, either sod or trees. Ordinary good management of pasture or woodland is all that is required.

7. CLASS VI LAND

This class includes land which is moderately and seriously eroded or which is very susceptible to erosion because of steep or long slopes. Because this land is more difficult to work and, when cultivated, is so seriously exposed to erosion, it should be kept under permanent vegetation. Even with sod or trees to protect it from erosion this land should be managed carefully. If grazed, salt licks and watering places should be arranged so as to prevent cattle tracks starting gullies. If reforested, trees should be planted on contour rows when possible, and in cutting woodlots vehicles should be driven along the contour to avoid starting gullies.

To get the best possible returns from pasture, the land can be cultivated, fertilized and seeded, but it should not be exposed to erosion during autumn rains or spring thaws.

8. CLASS VII LAND

This is rough, erodible land requiring permanent vegetation. Severe restrictions should be imposed on its use. If grazed, cattle should be excluded part of the time to avoid overgrazing, drought and formation of gullies in tracks. Plantations of trees should be on the contour, up and downhill tracks avoided and woodlots carefully managed.

9. CLASS VIII LAND

Steep, rough, bouldery or swampy lands which cannot be cultivated, grazed or lumbered are included in this class. It is suitable for wildlife and should be managed for the benefit of wild species of birds or mammals, for game or possibly for commercial use.

Soil wash and small rills have deposited a mass of sediment at the bottom of a mild slope.



Spring thaw and early rains did this in a few days. Sheet erosion, or wash, rill erosion and, finally, gullies are shown here.



A spring freshet running over grass does not cut into the soil.



LAND USE CAPABILITY CLASSIFICATION

	Acres	Per Cent
Class I.....	22,235	39.5
Class II.....	18,163	32.2
Class III.....	5,339	9.5
Class IV.....	1,661	3.0
Class V.....	5,454	9.7
Class VI.....	2,843	5.0
Class VII.....	649	1.1
Class VIII.....	26	...
Total.....	56,370	100.0

10. CLASSIFICATION OF LAND ON A SAMPLE STRIP

Two strips were mapped in detail with respect to soil type, with slope and erosion estimated in the classes already outlined. The land use of each field, in the nine use classes, was also indicated. From this can be calculated the ratio of intensity of use of any kind of land to the average for the area. This method of calculating rating of the soil is based on the assumption that over the years farmers have adjusted their land use to land capability. When this table is examined with respect to the soil types and conditions that cover significantly large areas, that is over 200 acres, it will be found that the proportion of the more intensive land uses show those soils which have been preferred for intensive use. The facts revealed by these measurements of land use and land type show that Milliken loam and Peel clay are by far the best soils in the region. The imperfectly drained associates of these soils, especially where there is any slope to remove water on the surface, are also highly favoured. Generally the light-textured soils, such as Pontypool, Fox and Milliken sandy loam, are used much less intensively and are recognized as soils of much lower capability. One soil, Berrien sandy loam, is a good soil for special purposes and due to proximity to the city is used for houses, estates and horticulture.

The present land use, as shown in this analysis, indicates that sloping and eroded land is recognized as having a lower capability. Three main features downgrade the land in this classification: lack of organic matter and fertility, slope and susceptibility to erosion and inadequate drainage.

The land most suitable for cultivation is fairly intensively cultivated. That is, a large proportion of Class I, II and III land is in crops in rotation. The small amounts in permanent pasture or woodlot are not significant. Deliberate efforts to check erosion and rapid run-off are not common on the Class II and Class III land.

Land of lower capability—Class VI and VII—is largely under woodlots or pasture, but there is still some under cultivation. The carrying capacity of pasture on Class VI land can be increased a great deal by the methods of improvement now commonly used on better land.

The most critical problem is in respect to Class IV land, but as this involves only 3 per cent of the farmland it is not serious. Restricted rotations, winter

Recommendations

GENERAL

1. That the Authority co-ordinate the efforts already being made by various organizations to protect and preserve houses, churches, mills and other historical sites on the Don Watershed.
2. That selected sites connected with early settlement be marked in a more suitable manner and, where circumstances allow, be included in areas set aside for recreation, and that these be given names which will connect them with the history of the site.
3. That the Don Authority in co-operation with the Humber Authority and other organizations and government departments of the Province consider the establishing of a farmers' museum, in which typical old buildings, such as a school, church, country store, sawmill, etc., be moved into one area or "village" and that these buildings be used as a repository for equipment, utensils, tools, vehicles, etc., of historical interest.

LAND USE

4. That the Authority encourage and assist in the building of farm ponds.
5. That one or more farms which include land suitable for contour tillage and other conservation practices be established as "pilot" farms to encourage the practice of soil conservation.
6. That soil conservation measures be practised as indicated on the map of land use capability which accompanies this report.
7. That as public acquisition of land for recreation and headwater control of streams and changes in tenure of farm properties are carried out they be done in accordance with the demonstrated capabilities of the soil.

FORESTRY

8. That the Don Valley Forest of about 3,600 acres be established by the Authority to protect the sources of those permanent streams rising in the moraine.

32. That park services, including a supply of drinking water, picnic tables, fireplaces, garbage receptacles and toilet facilities, be provided at points in the Green Belt where intensive use is expected.
33. That minimum standards be set for the construction, maintenance and operation of buildings set up for the sale of refreshments by concession in the Green Belt areas.
34. That the Authority undertake or support a program of poison ivy control by "2-4-D" and mosquito control by "DDT" in the Green Belt.
35. That the Authority support the acquisition and development of an area in the Don Valley as a Botanical Garden.
36. That the Authority, using its powers under The Conservation Authorities Act of 1946, purchase Green Belt property, since the Green Belt is one of the natural resources of the watershed and should be conserved.
37. That the municipalities concerned should zone Green Belt lands, restricting their use to recreation where the lands need not be acquired outright.
38. That an area of 55 acres one-half mile west of Yonge Street on the Langstaff side road be acquired for development as a park and that a low dam be built within the park, creating an artificial lake of 27 acres.
39. That an area of 2,913 acres north-east of Maple be zoned under Section 406 of The Municipal Act of Ontario, thus restricting use of the land to forestry and recreation.
40. That the Authority acquire two areas of 160 acres (Maple Hills Park) and 363 acres (Poplar Hills Park) within the above zoned area for recreation parks.
41. That from one to fifteen acres be acquired at each of eight selected picnic sites which would be provided with parking space and equipped with tables and fireplaces.

cover and green manure are required on this land much of which is now exposed to erosion.

It can be seen from the table that about 80 per cent of the land is in Class I, II and III; less than 70 per cent is under crops in rotation; so that the available land is more than enough. The establishment of forest and grass cover for conservation of water in the interest of the whole watershed is therefore feasible without changing the type of agriculture in the area.

7. RECOMMENDATIONS AND PROGRAM EFFECTUATION

1. ADJUSTING LAND USE TO LAND CAPABILITY

The aim of a soil conservation program is to use the soil in such a way that it may be improved but never deteriorated. To achieve this aim each crop or cropping system and the methods of cultivation on each piece of land must be worked out to conform to the natural characteristics of that piece of land.

2. CARRYING OUT A SOIL CONSERVATION PROGRAM

Most of the land is on farms and will continue to be under agricultural production. Therefore a soil conservation program will, for the most part, be carried out by the farmers themselves. Some of the land is much more suitable for growing trees than for farming and will eventually come under some form of public ownership for the re-establishment of forest. Some of the land of lower capability is particularly desirable for recreation uses and the large city population nearby creates a strong demand for this type of land.

On any one farm a soil conservation program can mean a replanning of the whole farm setup in extreme cases, or merely the adoption of a few special practices on some of the land. A gradual change in the type of land use, largely in expanding woodlots, amalgamation of small holdings to provide sufficient cultivable land and the establishment of large zones of pasture may be required. The interests of conservation should be borne in mind so that trees and grass are established on land which require them.

3. METHODS OF SOIL AND WATER CONSERVATION

There are three main methods of achieving soil conservation: forestry, improved grassland and farm planning to incorporate all the recognized methods of cultivation and cropping to check erosion and build soil.

4. SOIL CONSERVATION ON THE INDIVIDUAL FARM

Some of the work of a soil conservation program can be carried out on land owned by the Authority. Most of the work, however, must be done by the individual farmer. The co-operation of all agencies concerned with maintaining the renewable natural resources of soil, water and forest is stressed.

5. SOIL CONSERVATION ON THE WATERSHED AS A WHOLE

On this watershed, land use is not quite typical of agricultural land in Southern Ontario, largely because it is so near to a large metropolitan area. There are changes in land tenure and land use constantly taking place and both

public and private recreation areas are being established. The maintenance of a good flow of clear water in the streams is desirable to both farmers and city people. Therefore it is necessary for the overall requirements of the watershed to be kept in mind by everyone who has anything to do with the land.

6. THE LAND USE CAPABILITY MAP

Accompanying the full report are two maps, one showing the present land use and the other showing the land use capability. These maps are recommended for serious consideration by the Authority and by all agencies and individuals concerned in any way with agriculture.

PART III—FORESTRY

1. THE FOREST

The Don Watershed originally covered parts of two distinct forest regions. The Deciduous Forest Region, characterized by oaks, extended approximately to the shoreline of glacial Lake Iroquois, marked by the hill near Woodlawn Avenue on Yonge Street. The City of Toronto now covers this region and none of the forest remains today except the vestiges which may be seen in the oaks of Queen's Park, Upper Canada College grounds, Rosedale and Moore Park. Remnants of the pine stands exist on the lighter soils along the slopes of the Don Valley and these too were originally far more extensive than is apparent today. Outside the present urban area the forest was predominantly hardwood of the sugar maple-beech type, but large pines grew throughout most of the watershed and almost pure stands covered fairly extensive areas on the well-drained soils of the till plain. Very little poorly drained soil existed on the watershed, so swamp types were very limited in extent; cedar and tamarack occurred in very small patches near the stream, and white elm-silver maple swamps in one or two small areas where ponding had taken place in glacial times.

The watershed of the Don River was settled primarily for agricultural purposes and it is doubtful if much of the timber which was cut was used for any other purpose than local consumption. The stream itself is small and has not cut its way into the moraine, which might have made it a suitable stream down which to drive the pine logs which were produced in that area.

The rate of reduction of the forests, however, was very great for, though settlement did not begin until the end of the eighteenth century, by 1850 occupied farmland in York and Vaughan Townships was more than fifty per cent cleared and Scarborough was about eighty per cent cleared. By 1890 all townships were almost ninety per cent cleared.

Actual measurement of woodland areas within the Don Watershed made in 1949 shows a total of 5,443 acres or 6.1 per cent of the total area.

2. FOREST PRODUCTS

Until 1826 the timber on the public lands was reserved for the Royal Navy and could not be cut without licence. There was a considerable illicit trade, but the restrictions were a source of annoyance to the people and authorities of the



Sugar Maple-Beech, Type 57: Covered most of the watershed but since it occupied the best agricultural land has been greatly depleted though it is still the most common forest cover type.

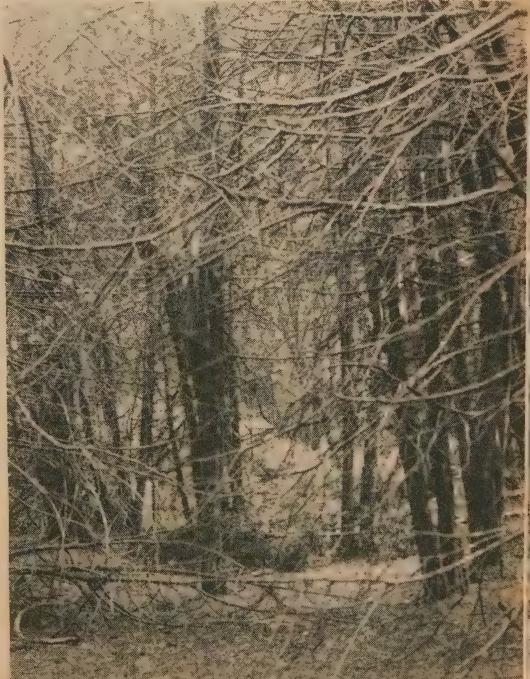


White Pine, Type 9: Occurs on the small patches of Berrien and Fox sand which occur throughout the watershed. The red pine is the only natural tree known to be growing in the Don drainage area.

White Pine-Hemlock, Type 10: Is present on cool slopes and is the most common coniferous type.



White Cedar, Type 24: Is found in small patches in swamps. It should be encouraged for the durable posts and poles it produces.



colony. A system was set up by which anyone was at liberty to cut timber on the ungranted Crown lands of the Ottawa region by paying a fixed scale of fees.

Mast timber was marked by government agents with a broad arrow blaze. As late as 1827 the Surveyor-General was ordered to make a survey of "Masting and other Timber fit for the use of His Majesty's Navy." The mast and spar export to Britain thrived in the 30's and 40's and continued intermittently up to 1855. The British trade dropped off noticeably after the Reciprocity Treaty with the United States in 1854 and after the building of railway connections with United States cities.

Squared timber at first consisted mostly of white pine, squared on all four sides into one long stick. Later walnut, oak, ash, birch, elm, maple and even hemlock were made into squared timber. The timbers were built into huge rafts and floated down to the timber coves at Quebec.

In the very early days of settlement sawn lumber was prepared by hand-sawing in a saw-pit or with a platform on which the "top-sawyer" stood while his mate stood below the log. Twenty-five boards was a heavy day's work for two men.

Lumber sawn in the York area was very far from meeting the needs of the settlement even as late as 1805, and importation from the United States probably continued to 1812, when there were five or six sawmills near York. Between 1815 and 1825 twelve to fourteen new sawmills were built on the Don and lumber probably began to be exported about 1820. There are some references to rafts on Toronto Bay, but the indications are that it was cut near the lake and there are no references to log-driving on the Don.

Today there are only three mills on the Don Watershed, two of which are small mills doing custom sawing for local farmers and the third is a large primary sawmill in the town of Leaside, which draws all its logs by rail from outside the watershed.

A study of the Census of Canada returns of forest products of farms for York County reveals the various trends in the lumber industry fairly clearly. From 1870 to 1890 much of the timber was squared and measured in cubic feet. In 1870 other products listed were firewood, staves, lathwood, tanbark, masts and spars. Between 1880 and 1890 the peak production of nearly all items was reached and squared pine alone in York County ran to almost a million cubic feet in 1880. In 1890 fence-posts and telephone poles were added to the list of products, as were railway ties. In the census years of 1900 and 1910 squared timber was still recorded in cubic feet and logs were measured in board feet; staves, lathwood, masts and spars and tanbark disappeared from production. In 1920 no squared timber is shown and even logs are no longer separated by species. The returns of the latest census in 1940 name only one forest product and the remainder are all listed together as "others", valued at so many dollars. The one product which has persisted throughout the records is firewood, which in York County has dropped from a peak of 156,639 cords in 1880 to 24,493 cords in 1940.

The three most important indirect products were maple sugar, lye and tanbark. Maple sugar was almost the only sugar available to the pioneers and potash was produced in large quantities from hardwood ashes for export to

Great Britain and the United States. Maple syrup production in York County in 1940 was less than one per cent of the production in 1860.

3. PRESENT WOODLAND CONDITIONS

To get an accurate picture of woodland conditions in the watershed, a detailed study was made of all woodlots, natural water storage areas and land suitable only for tree planting.

All woodlots were classified as to whether they were hardwood, mixed wood or coniferous stands, and grouped by diameter classes. Records were made of the degree of reproduction and grazing. Where plantations were encountered notes were made on methods of planting, care, damage and survival.

There are 5,443 acres of woodland within the watershed or 6.1 per cent of the total area of 89,997 acres. Separate woodlots examined numbered 937. In many cases differences in type and age made it necessary to list larger single wooded areas as several woodlots.

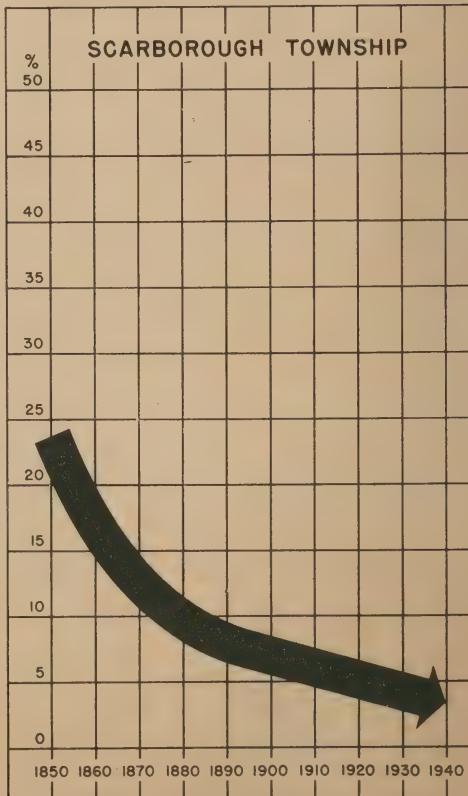
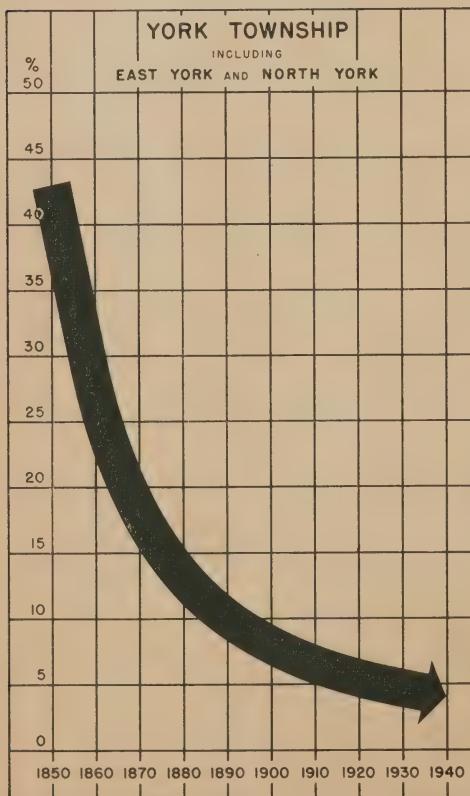
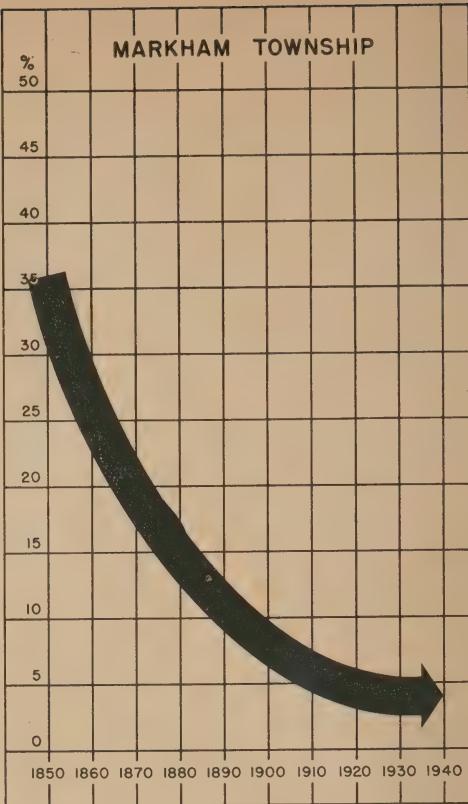
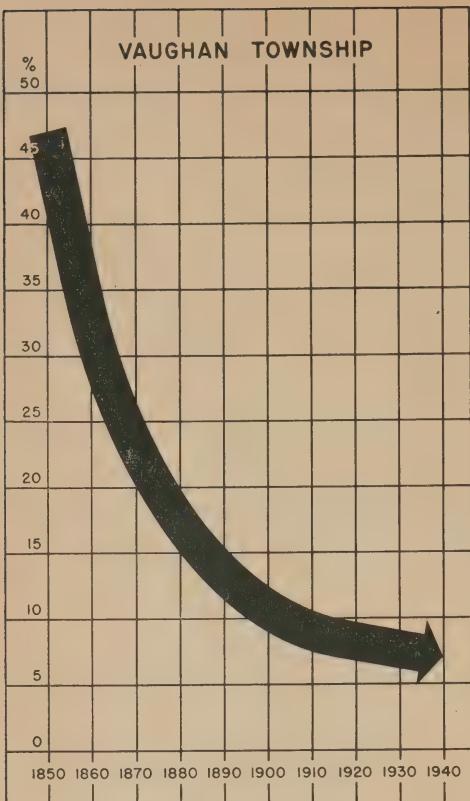
The conifers occurring in the watershed are white pine, hemlock, white cedar and tamarack. Red Pine probably occurred in the original forest, but only one tree was found in the natural state at the time the survey was made. White pine is fairly generally scattered throughout the watershed along the edges of the ravines and on the moraine. Hemlock is found mixed with hardwoods, and white cedar and tamarack are present in the small swamps. There is no doubt that conifers formed a larger part of the woodland than they do today, but their numbers have been diminished because of the desirability of the lumber they furnish, and in the moraine recurrent fires have destroyed them while more fire-resistant species such as oak have survived. The situation at the present time is that of the 5,443 acres of woodland 75 per cent is hardwood, 19 per cent is mixed wood and 6 per cent is coniferous. The percentage of uneven-aged stands is considerably more than the even-aged, the figures being 83 per cent of the former and 17 per cent of the latter. Grazing is still fairly general; 31 per cent of the woods are pastured and 20 per cent are devoid of regeneration. This is low as compared with other watersheds and is accounted for by the large number of estates which have no cattle.

Fire has done considerable damage in the moraine area but is not a serious factor elsewhere.

From the above it will be seen that the wooded areas of the watershed are sparse, comprising only 5,443 acres, but are worth preserving and improving.

4. CONSERVATION MEASURES IN PROGRESS

Conservation measures are lamentably few. Private plantations total 224 acres and two small demonstration plantations have been set out, one near the North York Waterworks plant at Oriole in 1923 and one near the Richmond Hill water tower in 1925. These are 3 acres and 2 acres respectively in extent, and the former is in good condition, but very few trees have survived in the latter. Three demonstration woodlots were established some years before the war but have been seriously neglected since. No municipal forests have been set up in the Don Watershed, though York County has an excellent county forest some twelve miles distant, established in 1924.



PER CENT WOODLAND
CENSUS OF CANADA FIGURES

The whole of Southern Ontario is now divided into Forest Districts and Zones, each with its staff of foresters under the Department of Lands and Forests, who are available to give advice and assistance to landowners in the management and planting of their woodlands. The office of the Zone Forester covering the Don Watershed is located at Maple.

The present policy of County Forests was laid down in 1922 and is carried on under The Trees Act, R.S.O. 1950, c. 399. Under this Act a municipality may purchase land for reforestation and enter into agreements for its management without any limit as to size. In practice, agreements with the Minister of Lands and Forests for planting and managing county-owned land are not made for less than 1,000 acres. The agreements now in force run for thirty years, the Ontario Government agreeing to establish the forest and pay all the cost of management during that time.

Under the amended Act, townships have the same powers as counties, excepting that of issuing debentures. They may levy by special rate a sum, not exceeding \$1,000 in any year, for reforestation purposes.

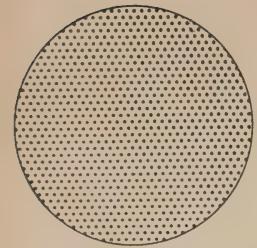
The agreement which has recently been drawn up between the Ganaraska Authority and the Ontario Government to establish and manage the Ganaraska Forest is substantially the same as that made with the counties, except that the government has agreed to pay half the cost of the land and the agreement for planting and management is to run until the year 2,000 A.D.

Demonstration woodlots are privately owned areas of woodland on which owners have agreed to follow prescribed woodland management, under the supervision of the Department of Lands and Forests, and to permit access by interested persons.

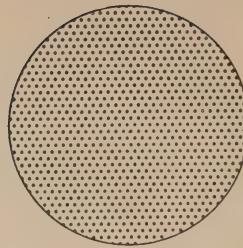
To encourage the establishment of school forests, planted and cared for by schoolchildren, the Ontario Horticultural Association has offered annual prizes since 1945 for the school having the best plantation and knowledge of forestry in each forest district. Prizes are provided by the Ontario Conservation Association, by Mr. A. J. Jackman of Owen Sound and by Mrs. D. W. Boucher of Kingston. The winners in the district competition are eligible for the Provincial Forestry Competition. Schools within the watershed have participated in these competitions and the school at Concord came third in the 1950 Provincial competition. Trees have been sent out to schools in York County but these have been distributed to the children for planting on the home farm and many have been used for windbreaks.

5. FOREST CONSERVATION MEASURES REQUIRED

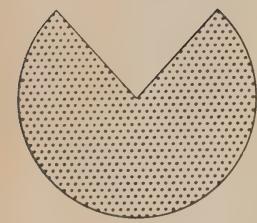
The Don Watershed does not lend itself to a very large program of forest conservation, because the southern end is almost entirely urbanized and the remainder is, on the whole, high quality agricultural land. At the northern end of the watershed, however, there is an area of about 3,600 acres which, because of its rough topography, the sandy nature of the soil and the fact that the best



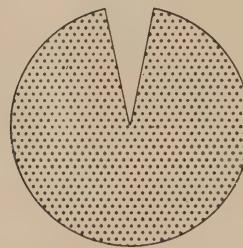
TOTAL SOURCE AREA
3600 acres
(100%)



TOTAL WATERSHED
89,997 acres
(100%)



CLEARED LAND
2743 acres
(76.2%)



CLEARED LAND
84,191 acres
(93.6%)



WOODLAND
824 acres
(22.9%)



WOODLAND
5,443 acres
(6.0%)



DON FOREST



TOTAL WATERSHED

SCRUB LAND
33 acres
(0.9%)

SCRUB LAND
363 acres
(0.4%)

LAND CLASSIFICATION

tributary streams rise here, is recommended for acquisition by the Authority. This area should be developed as a forest to be called the Don Forest, which will serve the dual purpose of protecting the headwater streams and furnishing a centre for outdoor recreation. Of the 3,600 acres 824 acres are wooded, 33 acres are covered with scrub growth and 2,743 acres are open land. Outside the area recommended for the Don Forest there are 330 acres of land covered with scrub growth such as hawthorn, sumach and willow, which are producing nothing of economic value. In addition there are small areas on many farms and estates such as steep banks and isolated corners which should be reforested. These are the responsibility of private owners, but the Authority should give every possible encouragement to the planting and fencing of these areas.

The Authority should also make every effort to preserve all existing woodland. York County has established a minimum diameter cutting limit of 14 inches at stump height for all species but poplar, Manitoba Maple, black locust, tamarack, white birch and willow, but further assistance could be furnished landowners by paying part of the costs of fencing woodland, as is done in the County of Halton, and by loaning or renting tree-planting machines as the Upper Thames River Conservation Authority proposes to do.

Controlled woodlot management of privately owned woodlots must be established in some form before conservation measures can be co-ordinated outside the area of the proposed Don Forest. The average owner does not take a wide view of the value of forest cover for protecting stream flow. As a result the systematic cutting, both for lumber and firewood, which has been going on for many years has done a great deal of damage. The system of selling blocks of timber for fuelwood is another vicious practice, since it almost always leads to complete clean-cutting. This situation should be corrected and areas connected in any way with the headwaters of streams should be controlled so that they cannot be clean-cut.

6. FOREST INSECTS AND DISEASES

In any project, such as is proposed for the watershed, careful consideration should be given to the prevention of insect outbreaks and tree diseases and arrangements made for control measures when necessary. There are a number of fundamental principles set forth in the full report which will greatly lessen the destructiveness of these pests.

7. LAND ACQUISITION

The problem of land acquisition should be approached carefully. It is not the practice in Ontario to overrule personal rights of ownership under the principle of eminent domain except to carry out works urgently required for the general good. The acquiring of poor land in the Don Watershed for reforestation may certainly be placed in this class and requires a more permanent authority than the individual to return it to its proper use. However, the problem should not be approached in a dictatorial manner and the willing co-operation of the people of the area should be secured by full explanation of the scheme and demonstration of its future benefits to the community.

The only part of the watershed where large-scale transfers from private ownership to the Authority would have to be made are those areas which are recommended as reforestation land. The best farms in these areas need not be entirely withdrawn from agriculture, where upkeep of public utilities is not too heavy. They could be incorporated in the forest as farmland and used by forest workers, since both farming and forest work are seasonal to some extent.

There are several methods of acquiring land for conservation purposes. It may be transferred to the Authority by ordinary private sale, a maximum price per acre beyond which the Authority is prohibited to go might be set, or in some cases long-term agreements could be made with the owners for control of such parts of their lands as fall within the forest scheme. As a last resort, the Authority has the power to expropriate land for conservation purposes under the Conservation Authorities Act, R.S.O. 1950, c. 62.

As an indication of the approximate cost of land for forests, a table showing the average cost per acre paid for reforestation land by counties and Authorities is included in the report. The average for the 39,798 acres in the table is \$4.47 per acre. This includes some land comparatively close to Toronto for which an average price of \$16.62 was paid.

While the establishing of such forests on the Don Watershed would be a long-term program requiring the spending of large sums of money, much of the land which is indicated for this purpose is useless for agriculture. A forest on the other hand is a crop, and a crop brings returns, and many of these areas in the future could be the centre of a thriving forest community. The following are two such examples.

In Nova Scotia there is a community living on Hammonds' Plain near Halifax which depends entirely on wood taken from small woodlands for its livelihood. In this settlement the largest woodlot is not over 400 acres in extent and because of the rocky nature of the soil the people are not able to augment their incomes by farming, though most families own a cow, a pig and some chickens. The wood from the woodlots is manufactured into barrels and boxes by more than twenty small mills which are largely family owned and operated. The people are thrifty and industrious; they have comfortable homes, are public-spirited and extremely forest fire conscious. This is a community which has developed naturally and yet resembles communities based on a forest economy which have been planned and established in Europe for a considerable time.

One of the most recent is the Forest of Ae in Dumfriesshire, Scotland. It was established by the British Forestry Commission in 1927 and covers an area of 10,683 acres of which 3,000 acres has been planted, 4,500 acres is scheduled for planting in the near future, 250 acres of the best land has been set aside for cultivation, and the balance of 2,800 acres is unplantable because of its altitude but is used for sheep pasture in summer.

The forest is in charge of a forester who resides on the property, assisted by a foreman and necessary workers. In the first year 16 men were employed, just before the war 27 full-time employees were engaged, and by 1960 about 90 men will be needed the year round for essential forest work. This does not take into account temporary employees who will be required for sawmilling, transport

and other jobs. It is planned to create a forest village for the workers, embodying a church, a school, playgrounds and sports-fields. The combination of the forest and the village dependent on it is something new in Scotland and represents an important start in the resettling of men and women in the country. The village is to be the forerunner of other similar villages, and in many parts existing villages will be revitalized by the stimulus of forest wealth.

PART IV—WATER

1. THE RIVER

1. GENERAL

The first recorded name for the Don is "Nechenquakekonk". Another name is said to have been "Wonscoteonach", meaning "back burnt lands", and there were possibly others in use as well. Fortunately these names were replaced in 1793 by "The River Don", given to it by Governor Simcoe after the River Don in Yorkshire, England.

The Don River drains 140 square miles north of Lake Ontario lying north of the City of Toronto and including a large part of the present city and its suburbs. The river consists of two main branches which, like most streams flowing from the morainic uplands north of Lake Ontario, tend to run to the south-east through much of their course. For the purposes of this summary these streams are known as the East and West Branches of the Don River.

The East Branch has its source about three miles north-west of Richmond Hill in the rugged morainic area, crosses Yonge Street at Thornhill, and flows in the usual south-easterly direction to near Oriole Station. There it turns more to the south until it reaches the Forks of the Don, north-east of Todmorden, the confluence of the two main branches of the Don. The West Branch has its source almost at the small hamlet of Teston, three and three-quarters miles west of Yonge Street and two and one-half miles north-west of Maple. It flows almost parallel to the East Branch, crossing Yonge Street at right angles just north of the present city limits, and continues south-east to the Forks.

Below the Forks the Don runs westward for a time, then turns south to Ashbridge's Bay. In the section below the Prince Edward Viaduct there have been many changes. The river originally wound through the flats from side to side of the valley and flowed through the marshes of Ashbridge's Bay, entering the harbour near Cherry and Carton Streets. In 1804 a flood broke a channel westwards along the shore of Ashbridge's Bay to the harbour, near the foot of Trinity Street. At the end of the last century this outlet and a stretch of the river above Queen Street were straightened and canalized. When the parts of the harbour and Ashbridge's Bay adjacent to Cherry Street were filled in after 1911, the outlet of the Don was established in its present position and the old ones were filled up.

Until 1853 the waters of the Don found their way into the open lake through the Western Gap. In a sense the whole of Toronto Harbour might then be considered as the "estuary" of the Don and the streams flowing into it as tri-

butaries. The easternmost of these creeks, the Taddle, had its outlet to the bay near the foot of Parliament Street, not very far from the mouth of the Don. Its source was above Davenport Road and west of Bathurst Street. The drainage area of the Taddle borders that of the Don on the south and south-west and considerably reduces the extent of the Don Watershed in that quarter, so that all the oldest part of Toronto, south of Queen Street, lies outside the watershed. However, a considerable area west of Queen's Park, between Bloor and Queen Streets, was drained by two small watercourses which rose in the park and ran south-east and south, flowing into the Don near the Queen Street Bridge. The Taddle and these watercourses have flowed underground for many years. The small valleys and hollows formed by them can only be traced in a few places; in others the levelling of streets and building sites has completely obliterated them. The divide separating the two drainage areas was always very low and is now hardly perceptible. Without the help of old maps and a careful examination of the ground it is difficult to reconstruct this part of the Don Watershed.

The Don has many other small tributaries. Most of these flow into the river from the north-west, like those just described, so that their valleys cut across the lines of the roads and streets. In particular, three tributaries rising near Dufferin Street and north of Eglinton Avenue flow through especially deep ravines and join the main river below the Forks. Only two streams of any length enter the river from the east. These are German Mills Creek and Taylor Creek.

The upper seven miles of the East Branch has a heavy gradient averaging about 46 feet to the mile, and for the rest of its course to the Forks a gradient of about 20 feet to the mile. Its drainage area above the Forks, including that of Taylor Creek, is about 73 square miles.

The West Branch, through its length of about 21 miles to the Forks, has a gradient of about 26 feet to the mile and a drainage area of nearly 49 square miles.

The lateral slopes are heavy over the whole watershed, increasing from the south to the north, where in the rugged headwater area above Richmond Hill they range from 70 to as much as 200 feet to the mile. In the remaining area to the lake the slopes range from 25 to 150 feet and, in isolated cases, as much as 250 feet to the mile.

These heavy slopes, together with the fact that there are no lakes or swamps of any significance to impound run-off, or forest cover to induce deep seepage, result in a high rate of run-off during spring freshets and summer storms, followed by an extremely low flow in the river during periods of drought.

2. FORMER FLOODS

Records of flooding on the rivers in the Toronto region begin with the first settlement of York. The Don is certainly included in some of these early references, although not mentioned by name. One, in 1801, records a shortage of salmon caused by the muddy waters of the "great floods". The Don was still noted as a salmon stream at that date. In 1804 a serious flood on the Don is recorded for the first time in a newspaper. This flood did heavy damage to mill dams, bridges and crops. It is also the first recorded summer flood, taking place in the second week of September. It opened the flood channel referred to

The rolling hills of the moraine with their sandy and gravelly soils are the sources of the permanent flowing tributaries and should be reforested.



Snow is retained from ten to fourteen days longer in the woods than on open land, thus helping to reduce flood peaks and aiding penetration of water into the soil.



One of the two portable mills on the watershed where a little custom sawing is done for local people.



in the last section. Damage to the Don Bridge by "an extensive flood" is mentioned in the report of the drowning of Parshall Terry in July 1808, and in August a subscription was opened for the rebuilding of the floating bridge over the mouth of the river, presumably damaged in the same freshet. From 1812 to 1850 few direct references to floods in Ontario can be found in newspapers, though there is ample evidence to be found in other sources that they were occurring fairly frequently. References to floods on the Don can be found for 1829, 1833 and 1835. These record the destruction of milldams or bridges. The Don Valley must have experienced some heavy flooding in the 1840's, when there were serious floods on the Humber, but no definite reference has yet been found to the freshet of any one year in this decade.

After 1850 the newspapers published more local news and flooding on many Ontario rivers was reported very regularly, especially at the spring break-up. The freshets of 1850 were disastrous. That on the Don did a great deal of damage at Thornhill, at Hogg's Hollow, at the Forks and at Todmorden. Mills and bridges were damaged or destroyed on both branches of the river. The smaller tributaries south of Hogg's Hollow flooded houses and washed out sections of Yonge Street and a man was drowned in Mount Pleasant Brook. The Queen Street bridge was destroyed in this flood and rebuilt in 1851. The new bridge was more strongly constructed than most Ontario bridges of the time and resisted the freshets until the great flood of September 1878. This probably is one reason why floods on the Don were less fully reported in the Toronto papers of the 1850's, '60's and '70's than those on other rivers. The next flood to be reported was the severe one of 1857, although it seems probable that there were heavy freshets in 1854 and 1856. The freshet of 1859 did damage to mills and bridges, but seems to have been less severe than that of 1857.

Some cases of damage to mills are also recorded during the 1860's, although the freshet of 1865 is the only one of which a newspaper report has been found. This flood threatened the bridges above and below Queen Street, now more important than before, owing to the growth of the eastern suburbs. The flood was less severe than had been expected and it is evident that more serious floods had recently occurred. Others probably followed between 1865 and 1878, for there was much flooding in Ontario during this period, and in 1878 it was said that "nearly every spring there have been freshets on the Don and bridges carried away or damaged." There were bad floods in Ontario in 1866, 1867, 1868 and 1869; and again in April 1870, December 1873, January and March 1874 and in March and April 1878. A moderate freshet on the Don in February, 1878 is the only one reported.

The flood of September 13, 1878 was the worst flood on the Don since 1850 and probably the worst of which we have any report. It was caused by a severe storm that affected most of Western and Central Ontario, causing floods from the Thames to the Trent. Almost all the bridges and dams on the Don were swept away, the flats flooded and many mill buildings damaged. Houses and other buildings on the outskirts of Toronto were swept away bodily and the wreckage of a warehouse on River Street caused the destruction of the Queen Street Bridge. The South Park Street (Eastern Avenue) Bridge only escaped because the flood washed away both approaches, leaving the structure isolated. The only communication to the east was by the Grand Trunk Railway bridge,

but the Northern Railway was blocked by a washout near Concord. The damage caused by the Don was estimated at "from \$200,000 to \$400,000", including 30 dams and 20 bridges. The next three years produced very few floods in Ontario and when a new series began in 1881 milling on the Don was beginning to decline. The bridges had been rebuilt on a larger scale and the floods did less serious damage. There are few reports of flooding near Toronto during the 1880's and 1890's. The freshet of 1881 is the only one of which a report has been found. It was not serious and it seems curious that no floods are mentioned in 1883, 1885, 1886, 1893 and 1898—all bad flood years in Ontario.

By 1885 most of the sawmills on the Don had disappeared and some grist mills had been converted to steam power. A number still retained their mill dams, but it is possible that a more intelligent practice of opening the flood gates in advance of the freshet was now the rule. Flooding of low ground was of little interest, for even today there are few houses on the Don flats. Road travel was now concentrated on roads leading to railway stations. Grain growing on the flats had given place to pasture and there was little to excite interest except ice jams near the mouth of the river.

In 1881 there was flooding on March 21st, but the heavy freshet on both branches came on the following day. The dam at Milne's Mills on Lawrence Avenue was washed out, the bridge at Don Mills carried away, some private bridges belonging to Messrs. Taylor damaged and the upper paper mill flooded. The Riverdale flats were overflowed and some damage done in the brick yards and to boathouses and shanties from Gerrard Street down to the bay.

There seems to have been some fairly spectacular flooding during the late years of the century, but little serious damage. In 1902 a February flood caused ice jams serious enough for the City Engineer's department to inaugurate the use of dynamite in clearing the river. This practice was continued in some subsequent floods and helped to shorten their duration and reduce the amount of damage. Railway lines were blocked in 1902 and again in 1912 and this has been one of the inconveniences caused by flood in several subsequent freshets. The flood of 1912 (April 6th) broke six of the remaining milldams but did little other serious damage. The statement in the Mail and Empire that it was "a rampage which baffles the memory of the oldest inhabitant" was even more absurd than usual with this stock phrase; for many people must have had clear memories of the Great Flood of '78. The flood was remarkable, however, because it was caused by a thaw unaccompanied by heavy rain.

Interest in flooding revived with the increase in motor traffic and the consequent rapid expansion of the suburban area. Floods of some height were reported in 1914, 1918, 1920 and 1927. Less serious flooding took place in 1928 and 1930. In 1927 an attempt to save a temporary railway bridge at Leaside resulted in the death of one of the workmen. The flood of 1936 was said to be the worst in more than 20 years. It did some damage to houses and factories between Don Mills and Prince Edward Viaduct. In 1939 there was a bad ice jam from Don Station to the ship canal.

Reports of actual damage have been less common since 1940, but flooding of the low ground has occurred several times. In 1942 the river overflowed the Riverdale flats in a spectacular manner. A few houses higher up were flooded,

the whole park was under water and railway traffic had to be suspended for a time. A similar situation occurred in 1948. Apart from the flooding of the flats below the Forks the chief inconvenience caused by recent floods has arisen from the flooding of short stretches of Yonge Street near Thornhill and Langstaff, such as was reported in 1943 and 1950. Similar flooding also occurred on No. 7 Highway, both east and west of Thornhill.

Floods on the Don were seldom complicated by ice jams, though the firm ice in the Bay sometimes increased the extent of the flood below Queen Street. The floods were sudden spates, usually taking place at the spring break-up, but often at other seasons. While the flats were used for growing crops, these "summer floods" were the most damaging. Otherwise the millers were the chief sufferers. Heavy damage to roads and bridges was another feature of the Don floods up to about 1890. This caused a great deal of inconvenience by interruption of traffic, as well as being a constant expense to the municipalities. As time passed and the region developed there was a constant tendency to raise the level of the roads, due to a desire to avoid steep grades rather than to the danger of flood damage. This began with the grading of Yonge Street in 1835 and continued through the last century until the building of the Rosedale bridges introduced the practice of carrying main roads across the Don ravines on high-level viaducts. This practice has been constantly extended and floods on the Don can now hardly interrupt road traffic below Thornhill.

The characteristic form of these ravines helped to prevent the growth of villages near the mills, such as are often found on other rivers. The small groups of workmen's cottages which did grow up in a few cases have almost all disappeared and, generally speaking, the steep sides of these valleys have discouraged the use of the flood plain for subdivision. Much of the Don Valley and the tributary ravines are still practically free from buildings. Chance conditions have favoured this voluntary restriction, as for example the fact that the City happened to buy the remaining portion of the Scadding lot as a site for a gaol and industrial farm. This made it possible eventually to make the Riverdale Flats a public park. If the policy of the "Inner Green Belt" is carried out in full, there will be little chance of future encroachment below Lansing. This is fortunate for there is no guarantee that parts of the flood plain may not again be overflowed as Hogg's Hollow was in 1850.

On the whole the floods of the Don now do only a small amount of damage compared to those before 1880 and there seems little likelihood that the amount will increase. Flooding is not a very serious problem on the Don and does not call for costly measures of control. It is now chiefly a nuisance in some areas, though seventy-five years ago it was still a serious and costly menace.

2. GENERAL HYDRAULIC PROBLEMS

Hydraulics as applied to conservation deals with the measurement and control of run-off from river drainage basins. Measurement has to do with such factors as precipitation—both rain and snow—the topography and vegetative covering of the area and the daily gauging of the flow of the river at selected points. Control deals with the prevention of floods by the use of reservoirs and other structures, and the increase of summer flow.

Floods which are caused by the natural run-off from river basins have occurred from time to time in Southern Ontario ever since records were first kept. Evidence of these can be found in diaries going back well over 150 years and from newspaper records for at least 100 years. Most of this run-off occurs in the spring, with the result that there is too much water in our rivers at the time of the year when it is needed least and very little, if any, during midsummer when it is required most. In addition to the flooding which is caused by spring run-off, occasionally floods also occur during the summer on watersheds which have little natural protection. These summer floods do serious damage to crops. Such floods are not confined to a few of our largest rivers, but records show that all rivers of any consequence have from time to time caused serious damage in this way.

When Ontario was mostly covered with forest and the natural reservoirs, such as large swamps, had not been interfered with, severe flooding probably was not as frequent as it is today because these two factors had an ameliorating effect on the flow of water. Land clearing and drainage were necessary to open up the country for agriculture, but in some respects these were carried beyond the point of necessity, thereby aggravating the flood situation. In order now to regain a more or less stable condition of the rivers and streams, certain conservation measures must be carried out, such as the reclaiming of large swamps and water storage areas, the reforestation of marginal and submarginal land, and also by a program of proper land use as indicated by farm planning, whereby run-off from gently sloping land can be controlled by such methods as contour cultivation and grass land where such is indicated. Such methods aim to control water where it falls on the land. If this could always be done it would be the ideal solution of the flood problem. But to minimize the required flood storage in a large watershed, a program of improved land use would need the co-operation of a great many individual farmers. This would take many years to accomplish. More immediate measures are therefore also necessary, especially where urban centres are frequently flooded.

One of the first problems facing the hydraulic engineer is to estimate or measure the run-off from a drainage basin, which in turn causes flooding farther down the valley. This includes a careful examination of rainfall over the years at different times of the year, which in turn presupposes that weather stations have been established in the area. Topography, types of soil, the amount of vegetative covering, particularly tree growth, on the area, and the gradient of the river, which has a bearing on the rapidity with which the water travels to the river's mouth, must all be carefully studied. If no gauging stations have been established then the run-off must be measured by taking the above factors into consideration. An approximate figure of flow must then be determined, by comparison with a neighbouring drainage basin which has gauge records, in order to decide how much protection by the use of reservoirs is required. If, on the other hand, gauges have been established, by which a daily record is kept of the amount of water going down the channel at certain points, then a more accurate appraisal can be made of how much protection is needed. Unfortunately, in Southern Ontario only those rivers which have power possibilities have a record of gauging over the years, and it is only within the last four or five years that gauging stations have been set up to record the flow on the smaller ones. This lack of stream measurement makes the work of hydraulic engineering in Southern Ontario extremely difficult.

After the amount of run-off has been measured by whichever means are available to the engineer, it will give him a figure of flow which will indicate how much of this water will have to be held back by different methods in order to give the necessary protection where flooding is taking place. This means that a reconnaissance survey of the whole watershed must be made in order that suitable valleys be selected where dams can be built for the storing of the required amount of water. When more than a sufficient number of such reservoir sites have been selected, each must be measured as to its capacity, and the required number chosen to hold back sufficient water to solve the flood problem. In addition, wherever a reservoir is built and the dam is of reasonable size, some exploratory work must be done at the damsite to make sure that the bedrock is sufficiently close to the surface and of the proper quality, so that the proposed dam will have a proper foundation. Only after this preliminary work has been carried out can the reservoirs be chosen, the actual designing of the dam structures undertaken, and the work carried through to completion.

While conservation reservoirs are usually built for the purpose of preventing floods, they are needed just as much in Southern Ontario for increasing summer flow. This has become increasingly important in recent years because rivers with extreme low flow and those which dry up entirely are a health menace to the communities through which they pass. Summer flow is necessary for flushing out the channel; to furnish water for industrial plants; for the practice of good agriculture; and is absolutely necessary for dilution where urban municipalities empty the effluent of their sewage disposal plants or raw sewage into the river.

The building of dams for the prevention of flooding and the increasing of summer flow is a comparatively new concept in engineering. It is only within recent years that structures of this kind have been used for this purpose. The older methods included such projects as straightening and widening the river channel and removing obstructions such as islands in the river, narrow bridges and other man-made works which might obstruct the flow or cause ice jams. Also, occasionally, for such work a river was diverted into another watershed, or dikes were built to hold it within its banks. Such practices are aimed at one thing only, namely to get rid of water as quickly as possible. They do not take into consideration the necessity of holding water at the headwaters for deep infiltration or retaining it for summer flow throughout the year. On some rivers in Ontario channel improvements, diversions and even dikes must be carried out and built, especially where dams and reservoirs are not economical and summer flow is not a major problem.

3. HYDRAULICS OF THE DON RIVER

1. INTRODUCTORY REMARKS

On most watersheds in Southern Ontario a hydraulic report is concerned with three connected problems, namely: flood control, summer flow and recreation lakes. On the Don Watershed the order of importance of the three above considerations is reversed. Floods on the Don have occurred periodically in the past, but may be classed as the nuisance type; additional summer flow would be an advantage if it could be produced economically, chiefly for diluting pollution in the lower reaches of the river; recreation, on the other hand, is of

paramount importance. The hydraulic work which has been done in the valley has emphasized this type of reservoir. There is a pressing need for recreation facilities near the City of Toronto, which is in the centre of the largest concentration of population of Canada. If these facilities are not provided now the cost and difficulty will be greatly increased. Accordingly, investigations were carried out on sites where small lakes could be created with adjacent land available for parks, and no regard has been given to the problem of storage for flood control and increased summer flow.

Reconnaissance surveys have been made of several reservoir sites (Fig. H-1) and approximate estimates of capacity and cost are submitted for those considered feasible. Further surveys will be necessary if construction is contemplated, but it would appear that the cost of building a sufficient number of storage reservoirs to have any appreciable effect on increased flow in the Don would be prohibitive. Even with such reservoirs, no great improvement in low flow conditions would be economically possible. The cost of providing two recreation lakes of moderate size would be approximately \$250,000.

2. GEOGRAPHICAL CHARACTERISTICS OF THE RIVER

The physiographic aspects of the river have a definite effect on the hydraulic problems of the watershed. The underlying shale is not exposed on the surface except by excavation at the Don Valley Brick Works. The overburden varies over the watershed and four belts or zones can be distinguished. The northernmost zone is a deep morainic deposit of light materials, extending south of Richmond Hill. It is important to the river since the many permanent springs supply most of the constant or base flow. South of the morainic zone lies a section of the Peel clay plain, extending approximately to Willowdale. The next zone reaches to the bluff forming the shore line of old "Lake Iroquois", known in Toronto as "the Hill". It is till plain, deposited under glacial ice and deeply cut by post-glacial rivers. Its composition is therefore very varied, containing patches of stratified sands and gravel and consisting generally of a mixture of clay, silt, sand, gravel and boulders. From the "Hill" to Lake Ontario extends the "Lake Iroquois Plain", a complex of sands, silts and clays, with patches of the mixtures found in the second and third zones—clay, silt, sand, gravel and boulders.

The characteristics of the river valley are governed by the terrain through which the stream flows. In the moraines of the headwater zone the valleys are small and sharply V-shaped.

In the central Peel clay plain zone the streams meander on the flat floors of typically U-shaped valleys, having steep banks of about 25 feet in height and a more or less uniform width of from 300 to 600 feet, with no flaring out or widening of the flats suitable for good reservoir sites.

In the lower reaches as far downstream as the Forks the valley slopes are steep and often terraced and have depths up to 125 feet. From the Forks to the Prince Edward viaduct the depth is greatest, but decreases south of the viaduct as the stream approaches Toronto Bay.

The application of the foregoing characteristics to the creation of lakes may be summarized as follows:

DON WATERSHED

SHOWING
DRAINAGE AREAS OF EAST
AND WEST BRANCHES
POSSIBLE RESERVOIR SITES
HYDROMETRIC GAUGES
AND SOIL ZONES

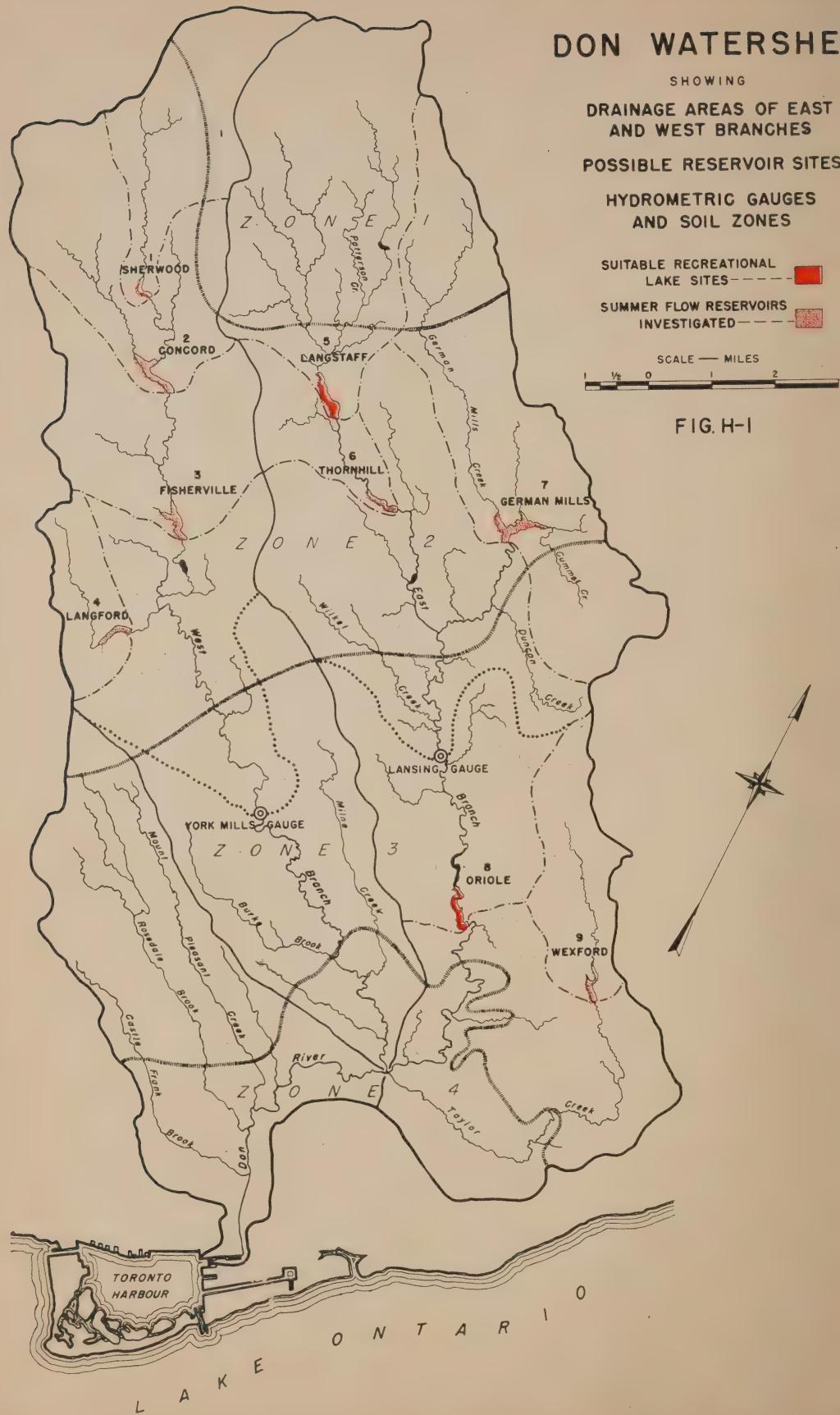
SUITABLE RECREATIONAL
LAKE SITES - - - - -

SUMMER FLOW RESERVOIRS
INVESTIGATED - - - - -

SCALE — MILES



FIG. H-1



The heavy lateral clay slopes, the absence of lakes and swamps and, except for the headwater zone, the lack of forest cover and springs result in a high rate of run-off during spring freshets and summer storms, followed by extremely low flow during dry periods.

The narrow and generally uniform width of the valleys and in particular the steep gradient of the river bed results in short narrow reservoir sites; consequently the storage capacity of the reservoir sites is small compared with the cost of the dams.

3. POSSIBLE RESERVOIRS

The watershed was examined for all possible reservoirs and damsites, many of which were considered impracticable because of land values. Of the nine surveyed (Fig. H-1), two have been selected as the most suitable for recreation areas.

If all the dams shown in Fig. H-1 were built, the combined regulated discharge would yield an approximate increase from May 15th to September 20th, a period of 129 days, of only 4 c.f.s.¹ for each branch, or about double the present low flow, an amount which would improve the flow considerably but at a prohibitive cost.

The sites most suitable for recreation lakes are those at Langstaff and at Oriole, briefly described as follows:

(a) Langstaff Dam and Reservoir (Fig. H-3)

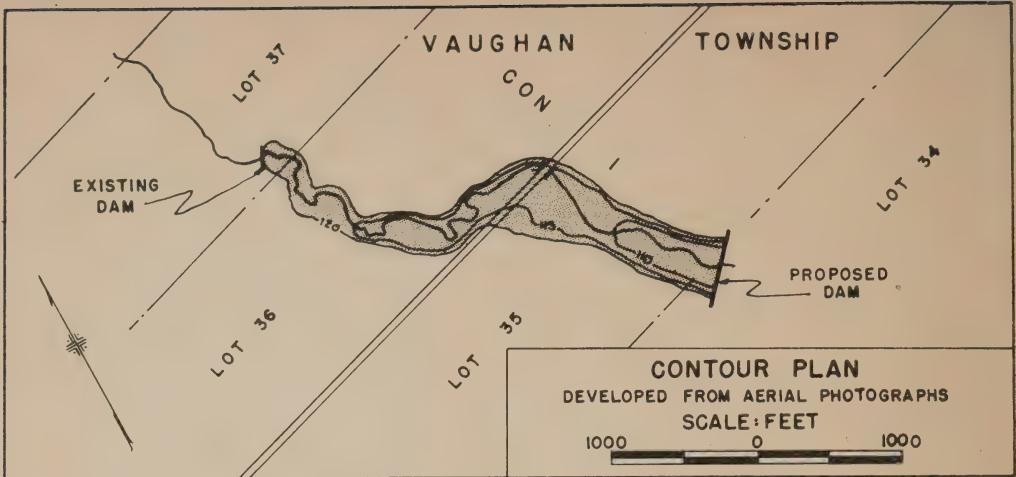
The damsite for this lake is just above the Uplands Golf Club and strides the line between Lots 34 and 35, Concession I of Vaughan Township and is included in Uplands Park described in the section on Recreation. A 27.5-foot dam which would raise the water 20 feet above the bed of the stream would create a lake approximately 3,500 feet long, with an average width of 340 feet, a water surface area of 27 acres, a depth of water over the flats at the dam of 12 feet, and have storage capacity of 170 acre-feet.² It would just reach an existing private dam some 3,500 feet upstream and would flood only a short section of the road between Lots 35 and 36 by about two feet. The estimated cost of the Langstaff Dam and Reservoir as of March 1st, 1950, is \$115,000, which covers all costs including the purchase of land.

(b) Oriole Dam and Reservoir (Fig. H-4)

The dam for this reservoir is located at the easterly end of Lot 6, Con. III E. of North York Township and is included in Oriole Park described in the section on Recreation. The reservoir at a maximum water level of 17 feet above the bed of the stream at the dam would have a depth of 5 feet of water over the flats near the dam and would roughly extend over to and then parallel the C.N.R. in Lot 6 and thence across Lots 7 and 8. It would have approximately a length of 5,500 feet and an average width of 150 feet with a maximum width just west of the dam of about 400 feet. The water surface area would be about 17 acres and it would have a storage capacity of about 117 acre-feet.

¹Cubic feet per second.

²A unit used for measuring water in a reservoir. One acre-foot is one acre covered with water to a depth of one foot, or 43,560 cubic feet of water.

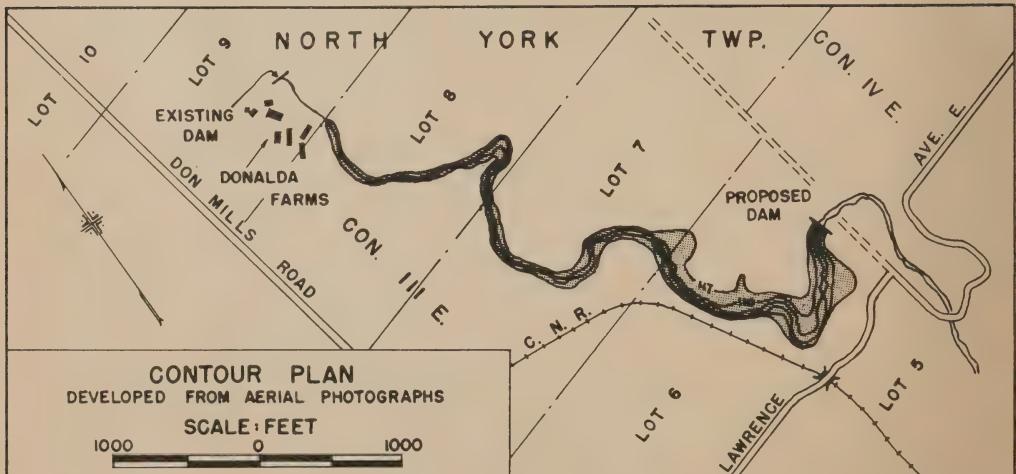


DON RIVER LANGSTAFF RESERVOIR

SCALE : AS SHOWN

DATUM : ELEV. OF STREAM BED AT PROPOSED DAMSITE ASSUMED 100.0

FIG. H-3



DON RIVER ORIOLE RESERVOIR

SCALE : AS SHOWN

DATUM: ELEV. OF STREAM BED AT PROPOSED DAMSITE ASSUMED 100.0

FIG. H-4

The surface features at the damsite appear to be suitable for this low dam. There is a high steep boulder clay-cut bank at the north end of the line and a sandy gravel terrace at the south end. The height of the dam is limited owing to valuable farm buildings located on the river flats at the north end of the reservoir. The water level opposite the farm buildings would be 6 feet below the lowest point of the buildings, which should provide ample freeboard for any summer flash flood that might occur when the reservoir was full. With such limited capacity this dam and reservoir would not provide any effective flood control but the dam would create a lake suitable for recreation purposes.

The land that would be flooded is pasture with a few scattered trees. The adjacent land, particularly at the damsite and along the easterly side of the reservoir, would be suitable for a park site and the gentle easterly slopes would provide easy access to the proposed lake. The estimated cost of the Oriole Dam and Reservoir, as of March 1st, 1950, is \$136,000, which covers all costs including land purchases.

4. THE WATER LEVEL OF THE RECREATION LAKES

The ideal condition would be to provide a storage reservoir above recreation lakes regulated to hold the latter at a constant water level during the summer months. The cost, however, as already pointed out, is prohibitive. If riparian rights below the dams are not to be disturbed it would be necessary that the dams discharge during the summer months an amount equal to the inflow into the reservoirs. It is not believed, however, that the small fluctuations in water level would affect their recreational value.

5. FARM PONDS

The construction of farm ponds has been recommended in the Land Use section of this summary. Scores or hundreds of these ponds would not only serve as a valuable utility to their owners, but would substantially raise the ground water table and increase the summer flow. Those located in the upper moraine zone, where permanent springs abound, would contribute cold fresh water. On the other hand the ponds located in the stream beds if kept full in seasons of freshet might to some extent intensify floods, but no serious damage need result if the dams are built to withstand an extreme rate of run-off.

PART V—WILDLIFE

1. INTRODUCTION

Land well adapted for wildlife should produce or harbour a permanent population of interesting species and an annual crop of game and fur. These are, therefore, the usual objectives in any recommendations concerning wildlife and wildlife habitats in a watershed. Much of the Don Watershed is already built up, and the discharging of firearms is prohibited in 80 of its 140 square miles. Game is scarce and hunting strictly controlled by Township Licence as well as by the provincial Acts in the remainder. The chief interest in the wildlife of the Don is therefore not in the game it can supply. Moreover the river is neither large enough nor of a character to supply much fishing. The Don Watershed

does, however, still retain a fair proportion of woodlands and many of its ravines supply exceptional cover for wildlife. The obvious need in the watershed is to retain for every citizen the opportunity to see and enjoy the varied forms of birds, mammals and other wildlife of the region in the greatest possible variety.

While there are many techniques of wildlife management, the provision of suitable habitats is at present the chief problem in the management of wildlife in the watershed. The only intensive work carried out during the survey was investigation of the character of the Don River and its suitability for fish species. A beginning was also made in research into the relation of the European hare to agriculture, reforestation and hunting.

2. FORMER SPECIES

At least ten species of mammals which formerly must have been found in the watershed no longer occur in it. These include the beaver, porcupine, timber wolf, black bear, marten, fisher, wolverine, otter, Canada lynx and wapiti or American elk. The bobcat or bay lynx, the varying hare and the porcupine may still occur rarely in the watershed. These three must be classified as remnantal species, properly belonging farther north.

The country probably supported a maximum of game and the larger forms of wildlife a few years after it was first settled. The cutting, burning and grazing of most of the remaining forest and intensive hunting and trapping have since then greatly reduced the wildlife populations. Such open country species as the red fox, skunk and cottontail were, however, increasing.

3. PRESENT SPECIES

1. MAMMALS

The report includes a list of 38 mammals now occurring in the watershed, including three which have been introduced.

2. BIRDS

The birds of the Toronto area have been intensively studied for more than forty years. About three hundred species of birds live in or migrate through the watershed, but less than one hundred species remain during the summer to nest in the area. The report includes a list of 88 species known to be resident in the watershed in summer.

4. IMPROVING THE FARM FOR WILDLIFE

The elimination of grazing of woodlots would be the most useful single measure in improving the wildlife environment. For the greatest value to wildlife the forest plantations proposed should be of mixed softwood and hardwood species. Large blocks of coniferous forest are not of much value to wildlife except in their early stages. After about twelve years they are sterile as far as most forms of wildlife are concerned, except at their edges. Good forestry practices in the farm woodlots will improve them for wildlife. Good farming practices

Langstaff damsite on West Branch, west of Langstaff.



Oriole damsite on East Branch at Lawrence Avenue East.



The "Forks" at the Don Mills Road crossing during summer 1949.



which make a more luxuriant vegetation benefit wildlife, and some conservation practices, such as strip-cropping and terracing, are of particular benefit. A few field boundary hedges will help to protect crops from wind and serve as travel lanes and cover for wildlife. The most efficient windbreaks will include both trees and shrubs, selected to provide a variety of fruits for food.

Unused fence corners may be made into havens for ground-nesting species by planting a few trees and shrubs and protecting them. Gullies which have been reforested for erosion control are also of great value to wildlife. Many farms have at least one low spot where it would be easy to make a pond. If possible, ponds for wildlife should be separate from those intended for fish or for cattle. The methods of providing cover and food plants in such ponds are described, and a list of suitable plants is included in the report.

5. SPECIES OF SIGNIFICANCE TO AGRICULTURE OR FORESTRY

The two species of greatest importance to agriculture or forestry are the European hare and the meadow mouse.

1. THE EUROPEAN HARE

This open country species is the most important small game animal in the Province. Following its original introduction into Ontario near Brantford in 1912, the species has come to occupy almost all the agricultural sections of the Province. It was first noted in the Don Watershed about 1925.

Only the northern half of the watershed can be considered to contain good hare range. The remainder is so heavily built up that it is not satisfactory habitat.

Both from observations and reports it was evident that the hare is much less common than it was six or eight years ago. This decline may be due to the tremendous increase in hunting since World War II. Extensive "jack drives" are common in the winter and many smaller parties comb the more restricted areas. Only extensive posted lands and Crown Game Preserves escape being hunted over. Red foxes and skunks are potentially important predators.

Foxes are commonly blamed for the decline of hares, but in a large series of bones collected about the entrances of fox dens no hare remains were identified.

Too few European hares are now present on the Don Watershed to be of any importance as far as damage to crops is concerned. From approximately 1930-1943, when appreciable numbers of hares were present, damage to truck gardens and orchards was reported to be high. It is now negligible. The species is potentially a menace to fruit trees, especially in years of very deep snows.

Individual wire mesh guards at least three feet high are recommended for the protection of small orchard trees, but these are useless in winters of very deep snows when the hares can travel on top of the snow and reach the unprotected parts of trees. Several repellent washes designed to be sprayed on the trunks and branches of trees have already been tried, but none has so far been found to be the perfect solution. There is an urgent need for continued research to discover adequate practical repellents for the protection of orchard trees.

2. THE MEADOW MOUSE

There have been several local outbreaks of damage to orchards and to trees in plantations by the meadow mouse. Ninety-five per cent of the trees in a plantation of 20 acres of pine in Huron County were girdled and killed in a few weeks in 1948 by this mammal. Where large areas of the watershed are being recommended for reforestation an examination of the meadow mouse population appears to be essential. There is no sign of a widespread uniform population cycle in this species in Ontario. The 1948 survey indicated a very low population of meadow mice, but populations can build up very rapidly. There is no doubt that to re-forest any area having long grass and weeds without protecting the trees from meadow mice is to invite disaster. A dense mat of tall grasses or sedges is the preferred range of the meadow mouse. Both idle, poorly drained sand lands and muck areas covered with willow scrub or similar vegetation can support large populations. Plantations on well drained sandy slopes are also vulnerable if they adjoin low areas of long grass and sedges.

Protection of planted trees until they are eight to ten years old will probably in the long run prove to be more satisfactory than attempts to kill all the mice. Such control measures may include clean cultivation of the ground prior to planting, cutting and removal of grass and the use of repellents. The maintenance of a proper balance between predators and the mice would help to prevent the mice from increasing too quickly. This involves protection of all hawks and owls not actually known to be destroying poultry.

Laboratory tests have already suggested a number of compounds which successfully repel rats. Further tests under natural field conditions will have to be carried out on the most promising of these repellents to measure their efficiency against the meadow mouse.

6. FISH

1. METHODS

The Don River was intensively examined and the various branches classified as to their present suitability for fish and notes were made of possible improvements.

At 115 "stations" on the rivers, collections were made of both fish species and of many species of aquatic insects, which are excellent indicators of the river conditions for fish at the critical time of year. The condition of the stream at each station was noted. From these, data maps were prepared which show the following characteristics of the river: dries up completely in summer; areas of cold permanent water suitable for speckled trout; sections suitable for bass species; polluted water and other characteristics.

2. FLOW

The West Branch has few good spring sources and a relatively insignificant volume of flow in summer. The East Branch has many good spring sources in the gravel hills of the interlobate moraine and maintains a fair flow in summer. Several tributaries are fed into underground pipes near the Toronto city limits and the water is passed into storm sewers.

3. BANK EROSION

Bank erosion is not a serious factor except locally in the Don, but since the soil of most of the watershed is a clay loam, the river tends to be turbid and the bottom silty, apart from the sandy and gravelly headwater streams north of Maple.

The map accompanying the report shows the parts of the river which are seriously affected as a fish habitat by pollution. The present severe pollution of the Don is discussed in detail in the Recreation section of the report. While considerable industrial pollution occurs, it is insignificant compared with the effects of the effluents from six overloaded sewage plants.

4. FISH DISTRIBUTION

As a fishing stream the Don is no longer very productive, but in former times the fish were a valuable resource. A fine salmon fishery, "enough to support a number of families", was included in a description of a farm near Thornhill advertised in 1798. This species is now long since gone from the Don.

A list of 17 species taken in the river during the survey is included in the report. The fishing is now chiefly restricted to suckers and chub with occasional sunfish and mudcats. There are several species not listed which probably still occur locally in the Don, such as pike and rockbass. Speckled trout were found in some of the headwater streams, but these are chiefly in privately held areas and are not available to the public. Most of the remaining fish species are minnows.

The great decline in the productivity of the Don River is no doubt due to a combination of many factors. These include: the construction of dams, preventing the movement of migratory species; the reduction in minimum volume of flow due to the destruction of woodlands and to faulty agricultural practices; the increase of clay and silt in the river; the severe pollution of parts of the river; and alterations in maximum summer water temperatures. Overfishing was probably also a factor, particularly with respect to the land-locked salmon.

5. IMPROVEMENTS

While there is no hope that the fishing conditions in the Don will ever again be as good as they were a hundred years ago, some modifications would considerably improve the stream. The cold spring-fed tributaries could be protected and the influence of the streams extended downstream by further planting of trees for shade around sources and along the banks. Alders are the most useful trees for this purpose. There should result a slight but definite increase in the range of the speckled trout in the watershed. Individual owners of some tributaries could improve them for trout by constructing ponds near the sources. Many small pools could be developed in the sections of the tributaries below the trout range by means of low dams, partial dams or deflectors.

The Hydraulic section of the report includes recommendations for two possible artificial lakes, one at Oriole and the other lying within the proposed Uplands Park. It is suggested that these lakes might be stocked with large-mouth or small-mouth bass and bluegills.

These two views of farm land in North York Township show the present trend towards farms with clean fences and little wildlife cover. Such land provides fair territory for the European hare but for little other game.



The pond at Sheppard Avenue near Dufferin Street was the last remaining pond in the North Toronto region where, as late as 1949, grebes, black ducks, muskrats, painted turtles and many other interesting species made their homes.



6. FARM FISH PONDS

While there are several farm ponds on the watershed, few of them produce a useful yield. There is ample room for improvement of this type of fishing in the watershed and farm fish ponds can be a very useful resource. Cool ponds adapted to the production of speckled trout or brown trout are a rarity on the watershed but most farms have at least one low spot suitable for a warm water pond.

It is frequently good practice to have separate ponds devoted to wildlife and fish and to control the aquatic plants in the pond.

Most fish ponds require an emergency spillway and should be built according to the specifications described in the Land Use section of the report. The use of fertilizers is becoming more common to increase the crop of small aquatic invertebrates—necessary fish foods.

No results are available from planned experiments in farm pond management in Ontario and the recommendations in the report are based only on the experience of American wildlife specialists. There is urgent need for research work in Ontario in this field. The landowner who is interested in fish ponds should consult the Division of Fish and Wildlife of the Department of Lands and Forests at Maple. The overseers and biologists can suggest profitable alterations or additions to any plans made.

PART VI—RECREATION

1. GENERAL CONSIDERATIONS

The planning of recreation facilities in Ontario has in the past been chiefly directed towards two ends: facilities such as parks and playgrounds within the boundaries of cities and towns, and facilities for long and comparatively expensive vacations in wilderness regions remote from the industrial and agricultural areas of the province. The growing concentration of the population in industrial areas has overtaxed the local facilities, while the time and cost involved in reaching wilderness areas have prevented the average family or group from visiting such areas more than once or twice a year.

It is now well recognized that a third type of facility has been neglected, namely the public area within a few miles of the agricultural or urban worker's home. This lack of good recreation areas close to the city has been an obstacle to the enjoyment of healthy out-of-door activities and relaxation. This report has, therefore, two objectives: to make an inventory of the existing public recreation areas in the Don Watershed; and to direct attention to the areas which are needed for public use, but which are threatened by private interests. The essential requirements of such public use have been emphasized, and three points have been kept in mind:

- (a) The retaining and protection of natural advantages;
- (b) The development of adequate facilities in maximum variety, available to people of all ages, tastes and income groups;



This simply constructed skaters' shelter harmonizes well with its surroundings. It can provide a large warming room, food concession and toilet facilities.



The intensive use of the few available pools such as this one in East York shows the need for additional facilities.

- (c) The adjustment of recreation plans to any other conservation measures proposed for the Don and neighbouring watersheds.

The term recreation includes a wide variety of activities, for most of which there are suitable areas within the Don Watershed. Some such areas have only to be acquired to be available; others require to be improved or protected.

Modern master plans for both large and small cities include a zone of land called a Green Belt surrounding the inner metropolitan area and intended to provide space for many kinds of outdoor activities. Such a Green Belt is a feature of the master plans currently under consideration by the Toronto and York Planning Board and the Advisory Planning Commission.

The Don Valley offers a variety of opportunities for public recreation that are far from being fully utilized. Four outstanding features of the watershed are:

- (a) At a short distance upstream from the urban area, the Don breaks up into small streams suitable mainly for picnic sites.
- (b) Lower down, the valley is remarkably little spoiled, and the alternating broad and lush bottom lands and wooded slopes and terraces offer a great variety of fine recreation sites.
- (c) The lower parts of the valley are so close to the urban land that any attractive facilities which may be developed are certain to be intensively used.
- (d) The proximity of the lower sections of the river to the built-up area increases the difficulties from pollution and from the actual and potential uses of land, preventing its acquisition for public recreation.

Within the present limits of the City of Toronto, the Don has formed a complex system of ravines, unsuited for most urban uses, but ideally suited for recreation use. These ravines are all within convenient reach of more than a million people.

No part of Toronto is more than twelve miles from the Don. No part of the Don watershed is more than ten miles from Toronto. This ready accessibility to a large and growing population ensures the full use of any recreation facilities that may be provided. The fact that this concentration of population increases the difficulty of reserving and developing areas suitable for recreation only serves to emphasize the urgency of the need for far-sighted planning and prompt action to control and regulate further residential and industrial building in the valley, and to acquire and improve sites for recreation use.

Several of the most attractive ravines have recently been filled in to accommodate building development, or have been appropriated for the construction of traffic arteries. The destruction of these ravines indicates the urgent need of preserving those that remain. Through many parts of the Don Valley railway lines have been constructed, making access to the valley more difficult, creating crossing dangers, and producing annoying clouds of smoke. The banning of coal-burning locomotives from the urban area is a regulation long overdue.

Of the natural beauty of the Don Valley much remains unspoiled. Unfortunately, this is not true of the river itself. The Don River is probably the most

A natural park at the Bathurst Street crossing of the west branch of the Don. This area was for many years a favourite picnic spot but is now closed to the public.



Attractive stretches of the valley, such as this, should be preserved for public use.



Great willow trees line the quiet lanes and bridle paths of the Rosedale ravine.



heavily polluted stream in Ontario. Huge quantities of refuse, sewage and industrial waste are dumped into its waters.

There is, then, urgent need to acquire enough attractive lands for public use before private interests, residential, commercial, and industrial, by their development and growth, raise the land cost to a prohibitive figure. It is not too late for action on the Don Watershed.

2. EXISTING RECREATION FACILITIES ON THE DON

There are 25 municipal parks of various sizes, as follows:

- (a) Riverdale Park, Toronto Zoo and Millen Stadium: Contains 109 acres. Besides the Zoo, it provides a wide variety of facilities for athletic sports.
- (b) Todmorden Park: Contains 25 acres, part of which is used by the Todmorden Sewage Disposal Plant. The remainder is largely undeveloped open field.
- (c) Taylor's Bush and East Branch to Woodbine Avenue: Contains 116 acres. Formerly a popular picnic area, now spoiled by the stench from sewage in the creek.
- (d) Woodbine Park: Contains 17 acres. It contains the Danforth Park Sewage Disposal Plant, which contaminates the creek.
- (e) Cedarvale Park (East York): Contains 25 acres. Is being developed for sport, and contains an excellent swimming pool.
- (f) Dentonia Park: Contains 73 acres, mostly undeveloped. Taylor Creek is here polluted by the Scarborough Sewage Disposal Plant. Part of the park is developed for sports.
- (g) Rosedale Ravines: These narrow valleys contain 37 acres of park land. They are favourite spots for horseback riding.
- (h) Reservoir Park: Contains 44 acres, largely occupied by the Rosehill Reservoir. The ravine portion provides picnic accommodation.
- (i) Sherwood and Lawrence Parks: Together contain 53 acres in a ravine. Part of the area is developed for sports and picnics.
- (j) Eglinton Park: Contains 22 acres. Provides a variety of sports facilities.
- (k) Cedarvale Park (York Township): Contains 36 acres, much of it newly graded and undeveloped.
- (l) Carson Park: The City of Toronto has recently acquired an area of 151 acres of the ravine of the West Branch of the Don on both sides of the high-level Avenue Road bridge, near Hogg's Hollow.
- (m) Twelve small parks, aggregating 76 acres, developed as rest or sports areas.

Over 1,100 acres are included in the eight golf clubs using the Don Valley. Only two clubs allow public play for a daily fee. Others restrict play to members and their guests. The eight clubs serve about 1,100 players a day, or 150,000 in a season. Greatly increased use is possible. Some of these properties are used for skiing.

The trails of the main valley and wooded ravines have proved very attractive bridle paths. Five public stables are in operation. Many private horse owners also use the Don trails. On good days these trails serve over 1,000 riders, in a season over 75,000. Some stables organize corn and wiener roasts, hay rides and sleigh rides, and other popular outdoor activities.

The valley also serves the recreation programs of several churches, service clubs, Y.M.C.A.'s, Boy Scouts, Girl Guides and other organizations. These activities probably account for at least 40,000 visits a year to the Don Valley. The activities include hikes, campfires, over-night camps, campcraft and wood-craft, wiener roasts, treasure hunts, games, picnics, nature study, baseball and hockey leagues, skiing, sleighing and swimming. The organizations sponsoring these programs have offered the following suggestions for improving the usefulness of the valley.

- (a) Pollution control and improved swimming facilities
- (b) Provision of picnic tables and fireplaces
- (c) Provision of drinking water and sanitary conveniences
- (d) Retention of the naturalness of the valley
- (e) Better patrol to make the valley safe from undesirable persons and to curb vandalism
- (f) Provision of trails, bridle paths and roads, both for public use and to facilitate patrol
- (g) Provision of additional playing fields, rinks and games equipment for children
- (h) Publication of a map showing areas open to the public and routes of access to each area.

The Canadian Youth Hostel Association has established a hostel in the Don Valley to provide overnight accommodation for its members engaged in such healthful activities as cycling and hiking. The scope and influence of this organization seem likely to increase if suitable hiking trails are made available.

Other organizations providing specialized facilities for recreation in the watershed include one race track, three aviation companies, the David Dunlap Observatory, the Don Valley School of Art, and the Toronto District Revolver Association.

In addition, there are each year many thousands of individuals, families and small groups who visit the valley to hike, picnic or simply enjoy the scenic beauty that is so near the city and so different from it. Unfortunately, most of these visitors are trespassers on private property, not even sure of enjoying a picnic meal without eviction. Such circumstances breed resentment and vandalism, and call for the provision of ample public recreation areas in which proper supervision and control may be exercised.

Two commercial enterprises in the Don Valley provide facilities for public recreation. The York Mills Recreation Centre, at Hogg's Hollow, maintains tennis courts, a swimming pool, and in the winter an outdoor skating rink. Fantasy Farm, on Pottery Road, accommodates parties for dancing, and provides facilities for corn and wiener roasts, hay rides and sleigh rides.

With the exception of golf courses, the developed recreation facilities of the Don are almost entirely urban in type. Possibilities of rural and semi-rural recreation are many, but their present use is largely on sufferance of private owners, subject to withdrawal at any time. Action is needed, therefore, if the present facilities are to be maintained or increased. Only two of the eight golf courses are open to the public, and one of these is in imminent danger of being converted to other use. Riding academies flourish, but fear the loss of their trails. Many organizations promoting healthful group activities are happy to use the valley, and eager whenever possible to expand their work. The lack of sanitary facilities and of adequate supervision and control is a serious difficulty under the present land ownership. Swimming holes are commonly used, though some of them are in seriously polluted water. Good swimming facilities are almost entirely lacking. Winter sport possibilities are abundant, but require to be improved and developed.

3. POLLUTION

There is no doubt that industrial wastes enter the Don, both as refuse and as liquid wastes, but the volume and effects of these are insignificant compared with the amount of sewage which the municipalities along its banks pour into the river. In 1949 the flow of sewage from six municipal plants sometimes amounted to as much as twice the volume of the river itself. As a result, the river is foul both in appearance and odour. In addition, a serious health menace has been created, since children still wade and swim in polluted water at many points.

Recent studies by the consultants to the Toronto and York Planning Board show that the six municipal plants discharge daily into the Don about 6,500 pounds of suspended solids, and that remedial measures may reduce this discharge to 2,500 pounds. The objective to be attained is:

- (a) Water biologically safe
- (b) Freedom from visual signs of pollution
- (c) Freedom from heavy growths of algae

The report of these experts recommends unified control of sewage treatment throughout the metropolitan area of Toronto. "The setting up of a Metropolitan Area Authority should cover all thirteen municipalities. This is the only satisfactory and efficient way to secure a unified control so that all sections of the related areas will be called upon to adhere to the same standards and conditions so far as water supply, sewage disposal and storm water drainage are concerned."

4. PROPOSED GREEN BELT

Toronto is extremely fortunate in having a series of ravines which makes possible an encircling inner Green Belt. The people of the city have always made much use of the ravines for recreation purposes. The following is quoted from the 1943 report of the City Planning Board:

"As a first step toward public acquisition, all the ravines should be zoned for agricultural purposes only, the destruction of trees prohibited for all time, and no dumping, grading or filling allowed.

The outlet of the North Toronto sewage plant at Leaside into the Don River. For its size, the Don is the most heavily polluted river in the Province.

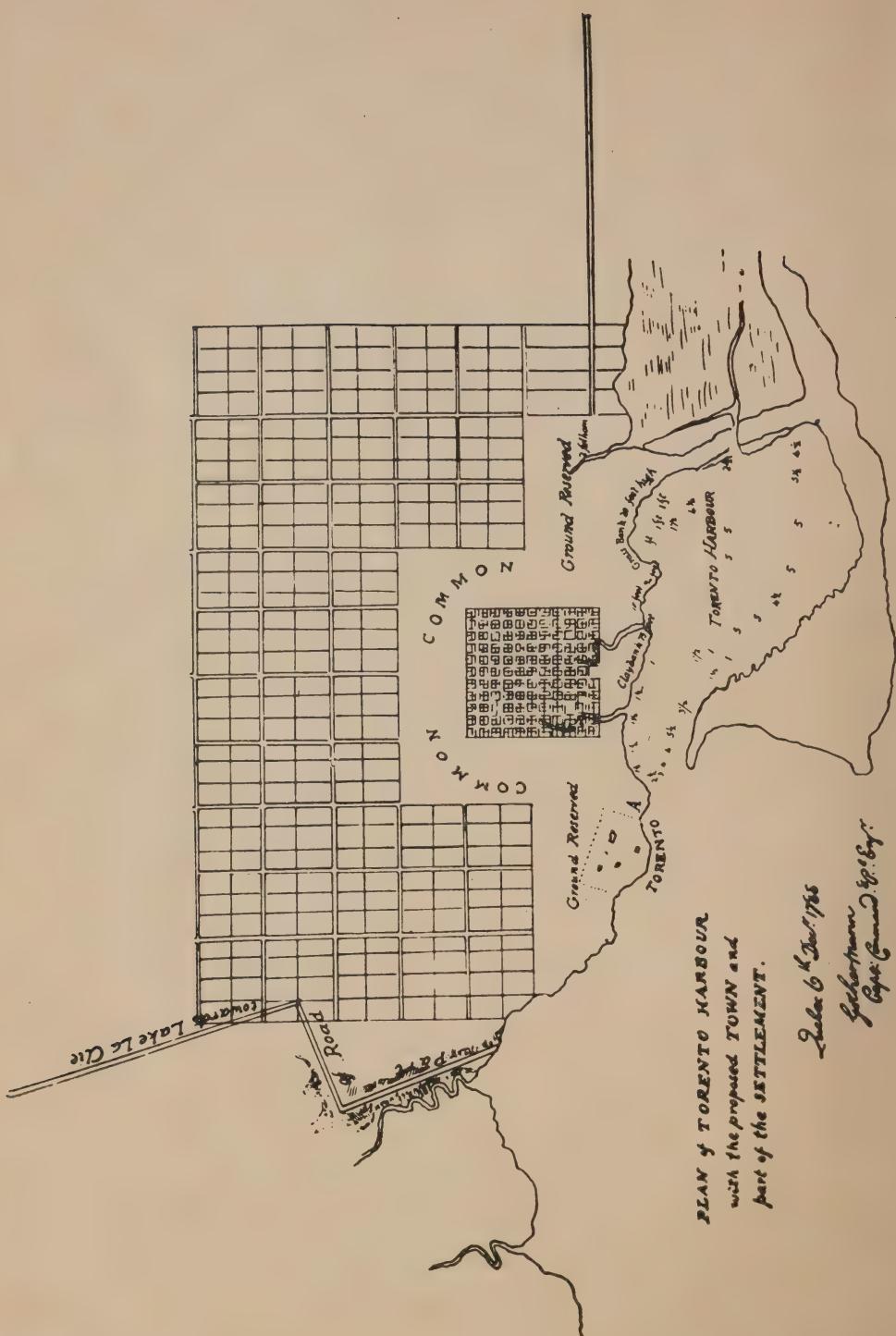


The same spot as shown above, showing the same outlet under water in May 1950. In this kind of flood the effluent is spread far and wide over the valley.



The lower reaches of the Don are foulled by both industrial and sewage wastes and are not suitable for fish.





CAPTAIN GOTHER MANN'S MAP
Proposed Plan of Toronto, 1788.

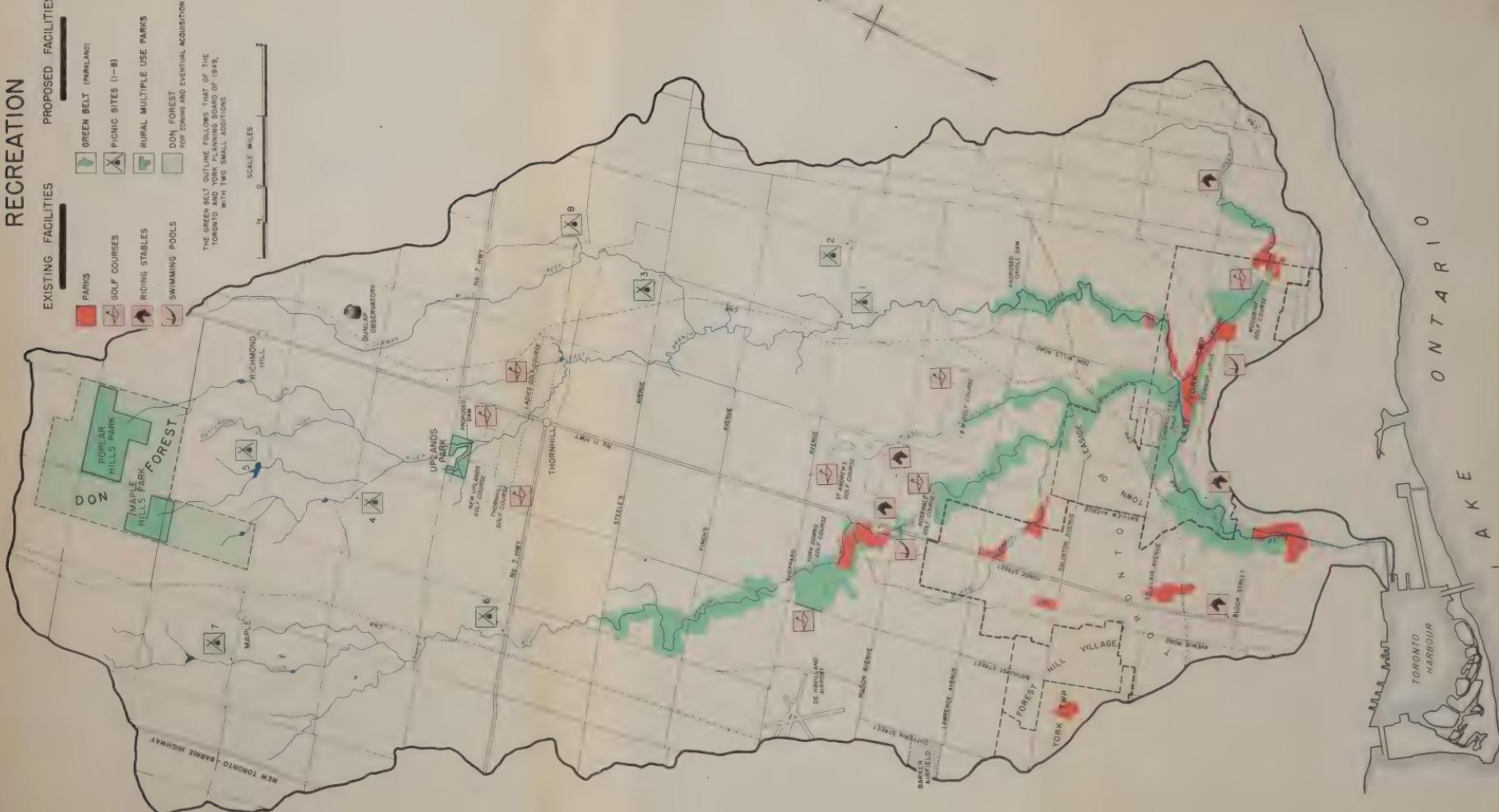
RECREATION

EXISTING FACILITIES

- PARKS
- GOLF COURSES
- RIDING STABLES
- SWIMMING POOLS
- PICNIC SITES (1-8)
- RURAL MULTIPLE USE PARKS
- DON FOREST
FOR ZONING AND EVENTUAL ACQUISITION

THE GREEN BELT OUTLINE FOLLOWS THAT OF THE
TODAY AND TONIGHT PLANNING BOARD OF 1949,
WITH TWO SMALL ADDITIONS.

SCALE MILES



ONTARIO

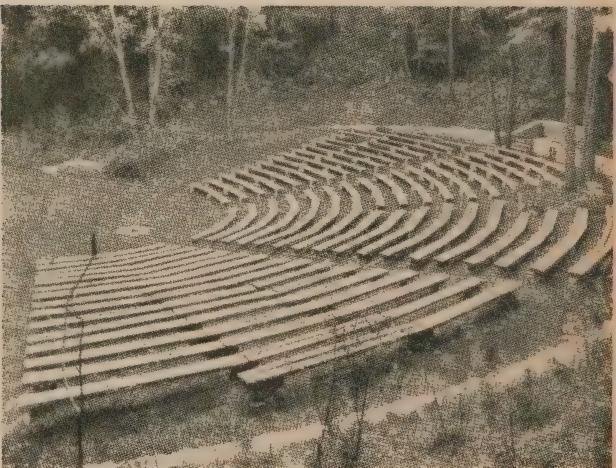
LAKE

TORONTO HARBOUR

This attractive man-made waterfall has successfully brought the aspect of naturalness to a large dam, transforming it into a delightful picnic spot.



The simpler the rendering of an outdoor theatre the more fitting in a natural park. Here is an example that does not pretend to outdo its surroundings.

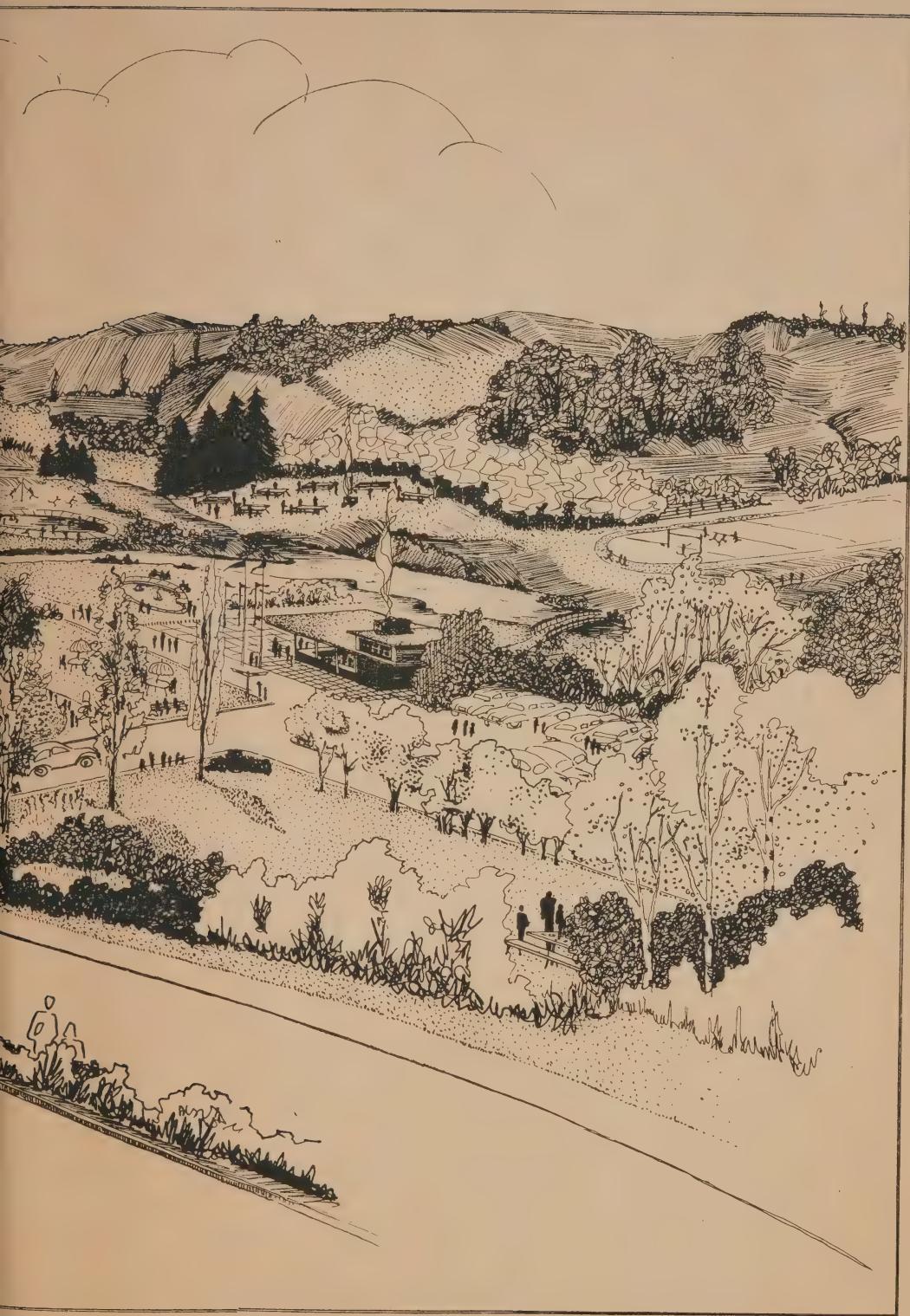


A gate such as this might well be used to mark off private property. It is simple and attractive, yet a convincing deterrent to trespassers.





A SUGGESTED TREATMENT OF
A PARK FOR THE DON VALLEY



"A conception of this green belt as a parkway in the usually accepted meaning of the term is foreign to this report. It should not be used by any through traffic. Travel through the green belt should be at slow speed by winding roads attractive only to those persons who wish to visit the ravine parks for their own sake.

"The Board's recommendation for the establishment of the green belt and its subsidiary ravines has two purposes. In the first place they are to act as barriers between residential and industrial districts, and to break up residential parts of the city into well-defined separated neighbourhoods, arresting the spread of continuous bricks and mortar to uncontrolled limits. In the second place they are the principal open spaces of the city for both passive and active recreation. Their fortunate disposition makes possible the development of a park system second to none, so distributed as to give the greatest accessibility to all the citizens, whether living inside or outside the green belt.

"In this park system the needs of every age group should be accommodated, whether it be for active sports such as golf, softball or tennis, or the passive enjoyment of picnicking in the unspoiled natural scenery of valley, river and wooded hillside."

The Green Belt can offer attractions in greater variety than an equal area of small parks could do. In addition it possesses the unique advantage of continuity, which allows a person with no greater assets than a lunch in his pocket and the spirit of adventure in his heart to escape from the tyranny of private property which normally surrounds him.

The area recommended for inclusion in the Green Belt includes 2,106 acres within the Don Watershed. The plan calls for the acquisition of new areas and the further development of the existing facilities. The institution of a systematic patrol to be maintained by constables in uniform is strongly recommended. The provision of drinking water, picnic tables, fireplaces, garbage receptacles and toilet facilities are essential improvements at points where intensive use is expected. Some provision is also needed for the sale of refreshments either by concessionaires or by the Authority itself. Such pests as poison ivy and mosquitoes can and should be brought under control or wholly eliminated. It is proposed to relocate the Toronto Zoo in a more suitable site where its enjoyment and its educational value can be enhanced. The combination of a zoo and a botanical garden is a possibility.

It should be added that there is no record of lowered rents or real estate values on properties adjacent to a modern zoological or botanical garden. Properties overlooking such institutions in Detroit, London(England), New York City, Washington and many other cities command higher rather than lower rentals than the average.

Implementation of the Green Belt plan has the approval of the Toronto City Council, but awaits the required measure of support from the surrounding municipalities. If this support cannot be attained through agreement or unification of these municipalities, it is recommended that the already established Conservation Authorities in the Don and adjacent watersheds may properly use



Simplicity of design should be the keynote in all structures or facilities in a modern rural park.





This refuse container has a small foot-operated door for the disposal of refuse, and a larger door for the removal of the refuse box. Flies and offensive odours are reduced to a minimum. Park users much appreciate this kind of modern facility.



Informality is the keynote of this stone fireplace, with its convenient raised hearth.



Low cost, suitability for quantity production, simplicity of installation and range of orientation in adaption to prevailing winds make this a most useful picnic fireplace.

their present powers to initiate the Green Belt plan, since all the measures outlined in the plan are designed to promote the conservation of the resources of the areas concerned.

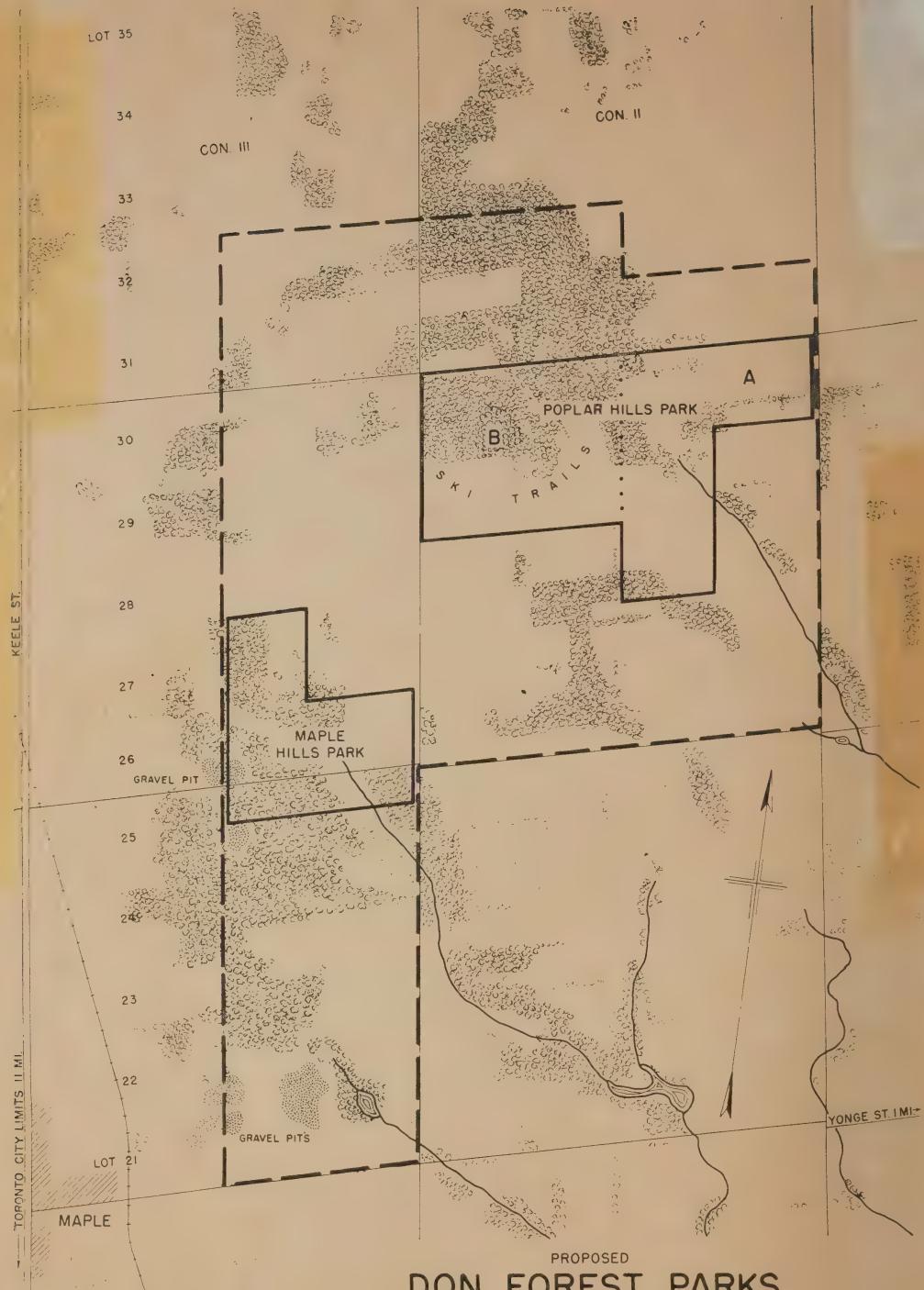
5. RURAL PARKS AND PICNIC SITES

In addition to the areas included in the proposed Green Belt, the present report recommends the acquisition and improvement of the following properties for recreation use:

- (a) Uplands Park, consisting of 55 acres, half a mile west of Yonge Street on the Langstaff side road, suitable for development of facilities for swimming, picnicking, and skiing.
- (b) Don Forest Parks, an area of 2,500 acres, which should be zoned to restrict its use to forestry and recreation. The large area includes two sections shown on the plans as Maple Hills Park and Poplar Hills Park, which are suitable for skiing, camping, hiking and riding. Shelters at lookout points would serve as rest points and give definite objectives to hikers and skiers. Much of the area should be reforested, and this could be done without interference with its value for recreation purposes.
- (c) Eight picnic sites, requiring the acquisition of from one to fifteen acres. In most cases little more is needed than to provide tables and space to park cars off the road allowance. Most of these sites include possible swimming or wading pools.

The acquisition of land for the Inner Green Belt will provide for valley drives through areas of scenic beauty, and should include suitable stretches along the rim of the valley. Such drives make an important contribution to the recreation facilities of a heavily populated region, and are intended for leisurely sightseeing. They relieve main arteries of this slow traffic, and should not themselves be permitted to become speedways.

It is suggested in the report that the existing recreation facilities of the Toronto Metropolitan Area are far from adequate. Toronto has abundant potential resources for recreation areas. There is an urgent need for prompt and effective action to make these resources available.



PROPOSED
DON FOREST PARKS
VAUGHAN TWP.

HEAVY BROKEN LINE (—) INDICATES BOUNDARY
OF AREA RECOMMENDED FOR CONTROL BY ZONING

SUGGESTED PARKS

MAPLE HILLS PARK (160 ACRES)

POPLAR HILLS PARK (363 ACRES)
(SECTION A 172 ACRES - SECTION B 191 ACRES)

WOODLAND

SCALE FEET

1000 0 1000 2000 3000 4000

A lookout which is merely a natural vantage point of no great elevation offers a view and rail for the protection of the observer.

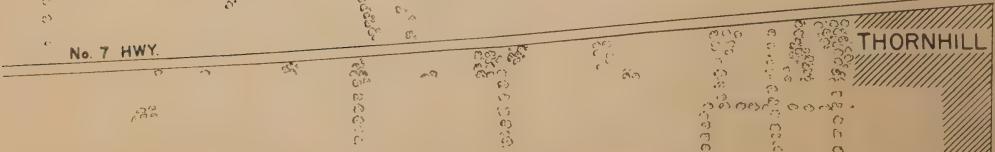
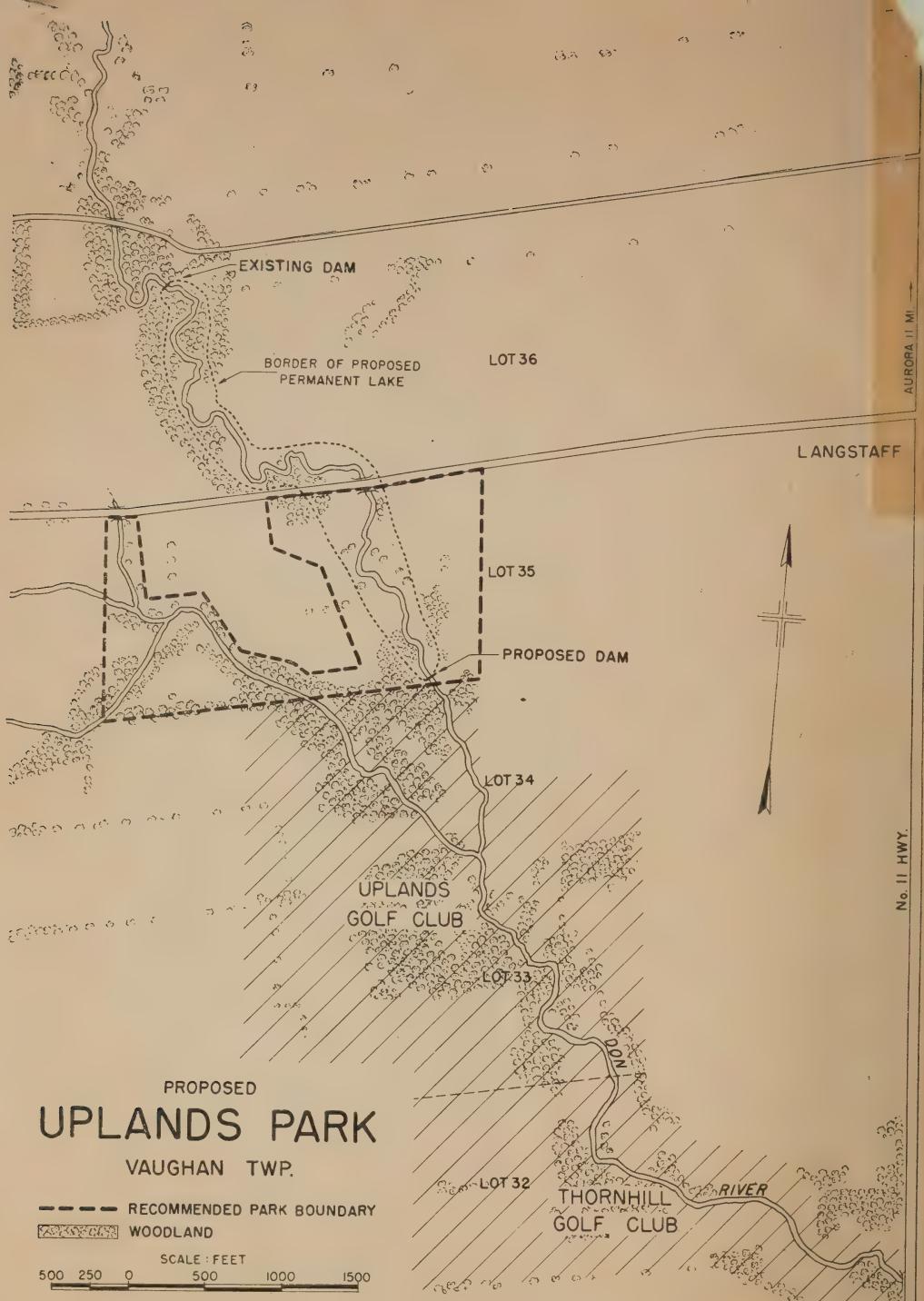


These stone steps blend easily with their surroundings.



A wooden foot bridge, to be sturdy and safe, need not be elaborate.





AURORA 11 MI.

No. 11 HWY.

